
The Bancroft Library

University of California • Berkeley

The Program in the History of the Biological Sciences and Biotechnology

Fred A. Middleton

FIRST CHIEF FINANCIAL OFFICER AT GENENTECH, 1978-1984

With an Introduction by
Louis J. Lavigne, Jr.

Interviews Conducted by
Glenn E. Bugos, Ph.D.
in 2001

Since 1954 the Regional Oral History Office has been interviewing leading participants in or well-placed witnesses to major events in the development of northern California, the West, and the nation. Oral history is a method of collecting historical information through tape-recorded interviews between a narrator with firsthand knowledge of historically significant events and a well-informed interviewer, with the goal of preserving substantive additions to the historical record. The tape recording is transcribed, lightly edited for continuity and clarity, and reviewed by the interviewee. The corrected manuscript is indexed, bound with photographs and illustrative materials, and placed in The Bancroft Library at the University of California, Berkeley, and in other research collections for scholarly use. Because it is primary material, oral history is not intended to present the final, verified, or complete narrative of events. It is a spoken account, offered by the interviewee in response to questioning, and as such it is reflective, partisan, deeply involved, and irreplaceable.

All uses of this manuscript are covered by a legal agreement between The Regents of the University of California and Fred A. Middleton dated June 2002. The manuscript is thereby made available for research purposes. All literary rights in the manuscript, including the right to publish, are reserved to The Bancroft Library of the University of California, Berkeley. No part of the manuscript may be quoted for publication without the written permission of the Director of The Bancroft Library of the University of California, Berkeley.

Requests for permission to quote for publication should be addressed to the Regional Oral History Office, 486 Bancroft Library, Mail Code 6000, University of California, Berkeley 94720-6000, and should include identification of the specific passages to be quoted, anticipated use of the passages, and identification of the user. The legal agreement with Fred A. Middleton requires that he be notified of the request and allowed thirty days in which to respond.

It is recommended that this oral history be cited as follows:

Fred A. Middleton, "*First Chief Financial Officer at Genentech, 1978-1984*," an oral history conducted in 2001 by Glenn E. Bugos for the Regional Oral History Office, The Bancroft Library, University of California, Berkeley, 2002.

Copy no. 1



Fred A. Middleton, 2001

Photograph courtesy of Sanderling Ventures

Cataloguing information

Fred A. Middleton (b. 1949)

Corporate executive/venture capitalist

First Chief Financial Officer at Genentech, 1978-1984, 2002, viii, 267 pp.

Childhood in New Jersey; education in chemistry, business; early employment experiences in business management, banking, and as financial and administrative officer for Genentech's first management team; early growth of Genentech, Inc.; corporate financial strategies: raising venture capital, product licensing, private placements, research and development partnerships, joint ventures, FIPCO [fully integrated pharmaceutical company] plan, junior common stock; discussion of Genentech products including insulin, growth hormone, gamma interferon, tissue plasminogen activator (tPA), enzymes; Genentech's initial public offering; comments on Eugene Kleiner, Thomas Perkins, Cornelius Pettinga, Robert Swanson, and others.

Introduction by Louis J. Lavigne, Executive Vice-President and Chief Financial Officer, Genentech, Inc.

Interviewed in 2001 by Glenn E. Bugos for the Program in the History of the Biological Sciences and Biotechnology, Regional Oral History Office, The Bancroft Library, University of California, Berkeley.

TABLE OF CONTENTS--Fred A. Middleton

BIOTECHNOLOGY SERIES HISTORY by Sally Smith Hughes	i
BIOTECHNOLOGY SERIES LIST	iii
INTRODUCTION by Louis J. Lavigne, Jr.	iv
INTERVIEW HISTORY by Glenn Bugos	vi
BIOGRAPHICAL INFORMATION	viii
I EDUCATION AND PRE-GENENTECH CAREER	1
Childhood and Interest in Science	1
Massachusetts Institute of Technology, 1967-1971	2
M.I.T. Biochemistry Course--Biology 7.05	3
M.I.T.'s Sloan School of Management and Harvard Business School	4
McKinsey & Company, Rooming with Swanson	5
Studebaker-Worthington, 1975-1977	6
McKinsey & Company Contacts	6
New York, 1975-1978	7
News of Swanson's Venturing and Genentech	7
Chase Manhattan Bank	9
II GENENTECH, INC.	10
Introduction to the Company	10
Founding the Genentech Management Team	10
Negotiation of Job Offer with Genentech	11
Swanson's Relationship with Kleiner & Perkins	13
My First Day on the Job--August 1978	14
Middleton's Duties and Accomplishments	15
Early Rapid Growth	15
Automatic Conversion of Preferred Shares	16
Negotiations with Eli Lilly, Novo Nordisk, and Hoechst for Human Insulin	16
Job One as CFO: Raising Money--Lots of It	17
The R&D Partnership Financing Program	18
The Pay-As-You-Go Strategy	19
Operating Responsibilities	20
Joint Ventures	21
Leaving Genentech	21
Genentech in Historical Perspective	22

The FIPCO Plan	22
Corporate Strategy	22
Growth Hormone	23
Gamma Interferon and tPA	24
Blockbuster Drug vs. Broad Technological Platform	24
Genentech IPO	25
Buzz about Biotech	26
Tandem Computers as a Model	27
Picking Hambrecht & Quist	28
Swanson's Hesitance	28
Attempting a Sale to Big Pharma	29
Drafting the Prospectus	30
<i>Examiner</i> Interview and SEC Response	30
Roadshow Honeymoon	31
Pricing the Shares	31
Fluor Corporation and Trading Volatility	32
Underestimating Manufacturing Costs	33
Private Placements	34
Premium Market Capitalization	34
Down Market for Biotech: Cetus and Biogen	35
Biotech Analysts	36
Government Regulation	37
FDA Regulation	38
R&D Limited Partnerships	39
The Need for Clinical Trials	39
Getting Investment Banks to Sell R&D Partnerships	40
Returns to Investors	41
Third and Fourth Partnerships	42
End of R&D Partnerships	43
Morgan Stanley Research Venture Partners	43
Genentech Development Corporation	44
Risk and Expense of Clinical Trials	44
Partnership Holds the License	45
Getting Idea for R&D Partnerships	46
Legal Opinions	46
Historical Significance of R&D Partnerships	48
Joint Ventures: Genencor	48
Corning's Interest in Biotech	48
Fifty-Fifty Joint Venture	49
Enzyme Products for Nonmedical Applications	49
Resources from Genentech	50
Genentech Industrial Products Group	51
Other Joint Ventures and Their Significance	51
Agricultural Products	51

Choosing a Joint Venture Arrangement	52
HP Genenchem	53
Instrumentation in the Biotech Industry	53
Travenol Genentech Diagnostics	54
Diagnostics as a Distinct Business	55
Joint Venture Returns to Genentech	56
Prutech Research and Development Partnership	56
GLC Associates	57
Joint Ventures as Managerial Training Ground	58
Significance of Joint Ventures to Genentech	58
Junior Common Stock	59
Middleton's Innovation	59
Accounting Debates	60
Junior Stock Vesting	61
Proliferation of the Structure	62
Junior Stock as Employee Incentive	63
Benchmarks	63
In Corporate Partnerships	63
In Research Contracts	64
In Royalties	65
Flexibility to Walk	65
Monetary Value of Benchmarks	66
Profit Sharing	66
Relations between Contract Revenues and Royalties	66
Product Evaluation/Development Teams	67
Budgeting Process	68
TAPE GUIDE	69
APPENDICES	70
A. Biography and Curriculum Vitae	71
B. Sigma Chi (M.I.T.) Yearbook Photographs of Fred Middleton and Bob Swanson, 1968	74
C. Genentech, Inc., Sale of Series A Preferred Stock to the Lubrizol Corporation, 1979	75
D. Fred Middleton and Herbert Boyer in Switzerland, 1980	101
E. Amendment No. 2 to Form S-1 Registration Statement submitted by Genentech to the Securities and Exchange Commission, October 14, 1980	102
F. Purchase of Common Stock by Corning Glass Works and Formation of Genencor, Inc., 1982	153
G. Genentech Clinical Partners, Ltd., 1982	178
H. Genentech Clinical Partners II, 1983	241
I. Bob Swanson and Fred Middleton at Fred's 50 th Birthday Party, 1999	263
INDEX	264

BIOTECHNOLOGY SERIES HISTORY--Sally Smith Hughes, Ph.D.

Genesis of the Program in the History of the Biological Sciences and Biotechnology

In 1996 The Bancroft Library launched the Program in the History of the Biological Sciences and Biotechnology. Bancroft has strong holdings in the history of the physical sciences--the papers of E.O. Lawrence, Luis Alvarez, Edwin McMillan, and other campus figures in physics and chemistry, as well as a number of related oral histories. Yet, although the university is located next to the greatest concentration of biotechnology companies in the world, Bancroft had no coordinated program to document the industry or its origins in academic biology.

When Charles Faulhaber arrived in 1995 as Bancroft's director, he agreed on the need to establish a Bancroft program to capture and preserve the collective memory and papers of university and corporate scientists and the pioneers who created the biotechnology industry. Documenting and preserving the history of a science and industry which influences virtually every field of the life sciences and generates constant public interest and controversy is vital for a proper understanding of science and business in the late twentieth and early twenty-first centuries.

The Bancroft Library is the ideal location to carry out this historical endeavor. It offers the combination of experienced oral history and archival personnel and technical resources to execute a coordinated oral history and archival program. It has an established oral history series in the biological sciences, an archival division called the History of Science and Technology Program, and the expertise to develop comprehensive records management plans to safeguard the archives of individuals and businesses making significant contributions to molecular biology and biotechnology. It also has longstanding cooperative arrangements with UC San Francisco and Stanford University, the other research universities in the San Francisco Bay Area.

In April 1996, Daniel E. Koshland, Jr. provided seed money for a center at The Bancroft Library for historical research on the biological sciences and biotechnology. And then, in early 2001, the Program in the History of the Biological Sciences and Biotechnology was given great impetus by Genentech's generous pledge to support documentation of the biotechnology industry.

Thanks to these generous gifts, Bancroft has been building an integrated collection of research materials--oral history transcripts, personal papers, and archival collections--related to the history of the biological sciences and biotechnology in university and industry settings. A board composed of distinguished figures in academia and industry advises on the direction of the oral history and archival components. The Program's initial concentration is on the San Francisco Bay Area and northern California. But its ultimate aim is to document the growth of molecular biology as an independent field of the life sciences, and the subsequent revolution which established biotechnology as a key contribution of American science and industry.

Oral History Process

The oral history methodology used in this program is that of the Regional Oral History Office, founded in 1954 and producer of over 2,000 oral histories. The method consists of research in primary and secondary sources; systematic recorded interviews; transcription, light editing by the interviewer, and review and approval by the interviewee; library deposition of bound volumes of transcripts with table of contents, introduction, interview history, and index; cataloging in UC Berkeley and national online library networks; and publicity through ROHO news releases and announcements in scientific, medical, and historical journals and newsletters and via the ROHO and UCSF Library Web pages.

Oral history as a historical technique has been faulted for its reliance on the vagaries of memory, its distance from the events discussed, and its subjectivity. All three criticisms are valid; hence the necessity for using oral history documents in conjunction with other sources in order to reach a reasonable historical interpretation.¹ Yet these acknowledged weaknesses of oral history, particularly its subjectivity, are also its strength. Often individual perspectives provide information unobtainable through more traditional sources. Oral history in skillful hands provides the context in which events occur--the social, political, economic, and institutional forces which shape the course of events. It also places a personal face on history which not only enlivens past events but also helps to explain how individuals affect historical developments.

Emerging Themes

Although the oral history program is still in its initial phase, several themes are emerging. One is "technology transfer," the complicated process by which scientific discovery moves from the university laboratory to industry where it contributes to the manufacture of commercial products. The oral histories show that this trajectory is seldom a linear process, but rather is influenced by institutional and personal relationships, financial and political climate, and so on.

Another theme is the importance of personality in the conduct of science and business. These oral histories testify to the fact that who you are, what you have and have not achieved, whom you know, and how you relate have repercussions for the success or failure of an enterprise, whether scientific or commercial. Oral history is probably better than any other methodology for documenting these personal dimensions of history. Its vivid descriptions of personalities and events not only make history vital and engaging, but also contribute to an understanding of why circumstances occurred in the manner they did.

Molecular biology and biotechnology are fields with high scientific and commercial stakes. As one might expect, the oral histories reveal the complex interweaving of scientific, business, social, and personal factors shaping these fields. The expectation is that the oral histories will serve as fertile ground for research by present and future scholars interested in any number of different aspects of this rich and fascinating history.

Location of the Oral Histories

Copies of the oral histories are available at the Bancroft, UCSF, and UCLA libraries. They also may be purchased at cost through the Regional Oral History Office. Some of the oral histories, with more to come, are available on The Bancroft Library's History of the Biological Sciences and Biotechnology Website: <http://bancroft.berkeley.edu/Biotech/>.

Sally Smith Hughes, Ph.D.
Historian of Science

Regional Oral History Office
The Bancroft Library
University of California, Berkeley
October 2002

¹The three criticisms leveled at oral history also apply in many cases to other types of documentary sources.

October 2002

ORAL HISTORIES ON BIOTECHNOLOGY

Program in the History of the Biological Sciences and Biotechnology

Paul Berg, Ph.D., "A Stanford Professor's Career in Biochemistry, Science Politics, and the Biotechnology Industry," 2000

Mary Betlach, Ph.D., "Early Cloning and Recombinant DNA Technology at Herbert W. Boyer's UCSF Laboratory," 2002

Herbert W. Boyer, Ph.D., "Recombinant DNA Science at UCSF and Its Commercialization at Genentech," 2001

Thomas J. Kiley, "Genentech Legal Counsel and Vice President, 1976-1988, and Entrepreneur" 2002

Arthur Kornberg, M.D., "Biochemistry at Stanford, Biotechnology at DNAX," 1998

Fred A. Middleton, "First Chief Financial Officer at Genentech, 1978-1984," 2002

Thomas J. Perkins, "Kleiner Perkins, Venture Capital, and the Chairmanship of Genentech, 1976-1995," 2002

"Regional Characteristics of Biotechnology in the United States: Perspectives of Three Industry Insiders"
(Hugh D'Andrade, David Holveck, and Edward Penhoet), 2001

Niels Reimers, "Stanford's Office of Technology Licensing and the Cohen/Boyer Cloning Patents," 1998

William J. Rutter, Ph.D., "The Department of Biochemistry and the Molecular Approach to Biomedicine at the University of California, San Francisco," 1998

Robert A. Swanson, "Co-founder, CEO, and Chairman of Genentech, 1976-1996," 2001

Oral histories in process:

Brook Byers

Stanley Cohen

Chiron Corporation

Roberto Crea

David Goeddel

Herbert Heyneker

Irving Johnson

Dennis Kleid

Arthur Levinson

G. Kirk Raab

William J. Rutter, vol. 2

Richard Scheller

Axel Ullrich

Keith R. Yamamoto

INTRODUCTION--by Louis J. Lavigne, Jr.

Whether raising operating funds through R&D partnerships, championing our first IPO--the hottest of its time--identifying and directing joint ventures, or simply ensuring that our budgets balanced, Fred Middleton was Genentech's champion of finance during the critical early years of the company's history. From 1978 to 1984, Fred rose from vice president of finance and administration to the company's CFO (Chief Financial Officer) spot, completing more than \$200 million in corporate partnering and institutional funding transactions during his tenure.

He was an ideal match for Genentech in those early days. As a financier, he had a deep understanding of the financial markets and a knack for raising funds through innovative ideas and structures. As a student of science, he understood biotechnology and could easily explain it to just about anyone.

Fred was the perfect complement to Genentech co-founder and CEO Robert A. Swanson. The two had been friends since their Sigma Chi days at MIT, both pursuing their MBAs while earning their undergraduate degrees in chemistry. And both shared a love for science, finance and entrepreneurial management. Bob was a great visionary who could convince someone that they could do something that seemed impossible, and Fred was someone who could take that vision and really make it happen from a financial perspective. He would have many conversations about it, polish the idea, and then create something workable and financially sound.

Fred's gift of gab went a long way toward building ongoing relationships with the financial community. For Fred, the phone was a very important tool. He spent an enormous amount of time with the receiver in his hand and had tremendous communication skills. He devoted most of his days to talking with investment bankers and others on Wall Street, describing biotechnology in a way they'd understand and outlining the opportunities for explosive growth and returns.

Fred was a master in building critical relationships and communicating with different audiences at different levels. He was a great inspiration in terms of how to build relationships on the outside--the amount of time and energy it takes to build relationships with investment bankers and people on the buy and sell side of the financial community in order to have them truly understand your business.

I first met Fred in 1982 when I was interviewing for a position to build the operating side of finance at Genentech. Already in that first meeting, I was struck by the fact that Fred was clearly someone who had a very strong understanding of the financial markets and who recognized that cash is king in terms of the development of a company. He made sure that the company was building a firm foundation and had discipline--something young companies don't always have. With Bob, he focused the company on making a profit at the earliest possible time and meeting scientific benchmarks linked to revenues. He and Bob were committed to growing the business in a very careful, thoughtful way--always preparing for a rainy day, raising money when we didn't need it at the time, and intent upon never getting

into a position of having to reduce headcount because the company got ahead of itself. That discipline is a hallmark of Genentech and one of the things we have always carried forward in the development of the business.

Even though Fred was this amazing financial powerhouse, he didn't always look the part. Fred always wore a suit and tie and still does to this day, but he was constantly running around the office with his shirttail hanging out of the back of his suit. He's quite tall, and clearly there was no shirt made that could be tucked in by Fred and continue to stay in place during his hectic workdays. He got more and more wrinkled and disheveled during the course of the day--to the continuous amusement of those of us on his team.

Fred left Genentech in 1984 to become president of Morgan Stanley Ventures. He continues today to combine his zest for science and flair for finance as general partner of Sanderling Ventures, where he directs investments in early-stage biomedical companies. And, even after all his success, I suspect he still has trouble with his shirttails.

Any student of finance who dreams of parlaying investors' funds into successful companies--and even creating brand new industries--would do well to study Fred's inspiring story. Thanks to his ability to, as he says, "go get the money," Fred made it possible to transform our scientists' dreams into products that extend, improve, and even save, people's lives. That's what I call an amazing return on anyone's investment.

Louis J. Lavigne, Jr.
Executive Vice President and
Chief Financial Officer
Genentech, Inc.

South San Francisco, California
October, 2002

INTERVIEW HISTORY--Fred A. Middleton

The initial public offering of Genentech shares in October 1980 launched what was then the largest first-day run up in a share price. It was a spectacular debut for the biotechnology industry and the one corporate event many people remember about Genentech. Genentech is otherwise known for its pioneering work in recombinant DNA, for bringing new drugs through approval and to market, and for ramping up mass production of its products. Yet as innovative as Genentech was in its science, especially in its formative years, Genentech was just as innovative in its corporate finance.

Fred Middleton, as Genentech's first chief financial officer, was instrumental in preparing the company for that IPO. Middleton anchored all facets of Genentech's early corporate finance. Middleton lays out the four key themes of Genentech's financial story on pages 17 to 21, then explores those themes in greater detail throughout these interviews.

First, Genentech was constantly raising money, estimated at \$450 million over the first seven years, and at ever higher valuations. This included several closings of a Series A preferred stock prior to the IPO (not then common practice) and several private placements after the IPO. These were unusual not only in the types of corporate partners Genentech cultivated, but also because these private placements followed upon one of the most successful public placements ever.

Second, Genentech adopted a pay-as-you-go philosophy, of always remaining profitable, even as a start-up company, by having contract income exceed operating expenses. An important part of that story was imposing budgeting and accounting controls--through product evaluation and development teams--on a loosely affiliated group of brilliant but unherdable scientists.

Third, Genentech pursued a FIPCO strategy. Genentech's first full generation of leaders decided to become a fully-integrated pharmaceutical company. The easier path would be for Genentech to simply license its intellectual property, sell itself as a research boutique, and live for the day it would be acquired by big pharma. Rather, Genentech cultivated expertise in every business discipline--finance, manufacturing, sales, marketing, clinical, and research--and grow quickly into a self-sustaining company that brought cures to patients. That was a bold stance at the time.

Fourth, Genentech constantly "benchmarked" by defining interim points toward the success of a research effort and attaching a dollar amount to it. Not only was benchmarking an important part of Genentech's relations with its licensees, but it also provided important internal metrics for progress.

Emerging from these three general themes that guided Middleton's work over his years at Genentech were three specific financial instruments that Genentech invented to fuel its early growth.

First, Genentech was the first pharmaceuticals company to use research and development clinical partnerships. As a general financial instrument these flourished only briefly, between 1980 and 1986. The impact on Genentech of its three clinical R&D partnerships, though, was enormous. They funded key clinical trials that Genentech likely could not have funded otherwise, isolated the risk of the trials, and proved very profitable for Genentech investors.

Second, Genentech created various classes of junior common stock. Again, this type of stock flourished only briefly--between the years that founders shares disappeared and stock options grew more common--but allowed Genentech to attract and retain, the world class scientists who worked there. Readers will note that Tom Perkins, a leading venture capitalist and Genentech's founding chairman, also considers Genentech's clinical partnerships and junior common stock to be financial inventions that not only drove Genentech's early success but were widely copied.

Third, Genentech showed the biotechnology industry how to structure joint ventures. Genentech started with a broad technology platform—essentially, the techniques of gene splicing and the practice of expressing protein—which opened the prospects for it to pursue products in many areas. Indeed, within its first decade, Genentech launched efforts in veterinary drugs, industrial enzymes, diagnostics and instrumentation, but quickly spun those efforts into joint ventures. This allowed Genentech itself to focus on therapeutic proteins for humans even while maintaining an equity stake in the technology it had developed. Genentech's finance and legal staffs grew expert at forming joint ventures, which provided a model for countless others, just as they grew expert at drafting the licensing agreements that became a standard practice among biotechnology companies around the world.

In these interviews, Middletown does an expert job of describing the evolution of these financial inventions as well as of explaining the broad sweep of Genentech's early financial history. Likely he has told these stories before while coaching the executives of his portfolio companies in his current position with Sanderling Ventures.

Middletown also adds some telling details to what we know about Genentech history. Bob Swanson cultivated many friends, and Fred Middletown was among his earliest. Thus, this interview starts with some intimate memories of friends sharing their dreams for their future careers. Middletown tells of how Genentech explored an acquisition by Lilly just prior to its IPO. Middletown was the first person to author the risk factors section in the filing documents for the IPO of a biotechnology company. Plus, Wall Street analysts did not then know what questions to ask of biotechnology companies, and Middletown describes how Genentech learned to communicate with the financial press.

We did three interviews during August 2001, at Middletown's office at Sanderling Ventures on Sand Hill Road in Menlo Park. Middletown had in his office a complete set of bound volumes of the public filings for the major transactions he oversaw while at Genentech. While these were all public documents, they are not easily available. And while most of these documents were formal and legalistic, they provided the precise dates, terms, and personalities involved in each transaction. He referred to them at times during our interviews to verify his memory of details. Selected documents from these transaction volumes are appended to this volume.

Winnie Lam, Middletown's assistant at Sanderling Ventures, was a great help in scheduling meetings then guarding the door as we talked. Even then, as marked by the few tape interruptions, some of Middletown's colleagues absolutely needed his signature before the close of business on those Friday afternoons. Middletown invited the current chief financial officer of Genentech, Lou Lavigne, to write the introduction to this volume. Genentech is a dramatically different company today than when Middletown left it, in terms of its size, product portfolio, and corporate alliances. Yet Genentech remains an innovator in corporate finance, as it remains an innovator in science, thanks to Lavigne and thanks to the standards Middletown set in Genentech's formative years.

Glenn E. Bugos, Ph.D.
The Prologue Group

Redwood City, California
September 29, 2002

BIOGRAPHICAL INFORMATION

(Please write clearly. Use black ink.)

Your full name Fred A. Middleton, Jr.

Date of birth 6-27-49 Birthplace Morristown, N.J.

Father's full name Fred A. Middleton, Sr.

Occupation Retired (Sales Exec.) Birthplace New Jersey

Mother's full name Carol B. Middleton

Occupation Retired (School Teacher) Birthplace Michigan

Your spouse/partner Carole J. Middleton

Occupation Nurse Birthplace Jamaica, New York

Your children Alex, Jennifer, Tara

Where did you grow up? New Jersey, Virginia, Indiana

Present community _____

Education B.S., Chemistry, M.I.T. 1971

MBA, Harvard Univ., 1973.

Occupation(s) General Partner, Sanderling Ventures
San Mateo, CA.

Areas of expertise biotech + biomedical venture capital;
new company management + corporate development

Other interests or activities Enjoy Travel, Photography, Scuba Diving

Organizations in which you are active _____

SIGNATURE Fred Middleton

DATE: April 7, 2002

INTERVIEW WITH FRED MIDDLETON

I EDUCATION AND PRE-GENENTECH CAREER

[Interview 1: August 3, 2001] ##¹
[Menlo Park, California]

Childhood and Interest in Science

Bugos: So why don't we start at the beginning. Where did you grow up? What did your parents do for work? What got you interested in chemistry and finance? What got you pointed towards M.I.T.?

Middleton: OK. A good set of questions. I was born in Morristown, New Jersey, June of 1949. Grew up in New Jersey in the 1950s and early 1960s. My dad was in marketing and sales for the Westinghouse Company. He commuted from the suburbs of New Jersey into New York City for twelve, thirteen years. Then I moved around to a couple of other places while I was growing up. My dad took a job in Washington with an import/export company, so we moved to northern Virginia--Fairfax, Virginia--in 1962 and lived there for two years. Then we moved to Indiana, South Bend, Mishawaka actually, in 1964. He worked for Studebaker Car Company there in their international consumer products operations.

When I was growing up I always had an interest in science and math; more science. I entered science fair projects and things like that. Just always had an interest in the area. Did pretty well in those subjects. I wouldn't say that I was a nerd, in terms of just having my nose in the books. But I probably did a reasonable amount of extracurricular investigation in the area. Did some reading, joined some clubs. Originally I went to high school in Indiana--did the first three years in Mishawaka. In my senior year, my dad took another job in London, England with the Singer Company.

So, unexpectedly I spent my senior year in high school in London, at the American School in London. Which, initially, was a bit upsetting--that I had to spend my senior year in London--but it ended up being an absolutely terrific experience. The American School in London was a private school, a prep school, pretty much for the children of expats who were over there for temporary tour of duty. Some of them were diplomats, some were in business,

¹## This symbol indicates that a tape or tape segment has begun or ended. A guide to the tapes follows the transcript.

in finance. Maybe 10 or 20 percent were non-US citizens who wanted their kids to go to an American college, so they were preparing them.

In London, I did well in school. Graduated number two in high school and had pretty close to a perfect grade point average. Just had a general interest in science. I attended a summer program at the University of London on various topics having to do with the environment, cosmology, physics, and so forth--was pretty interested in pursuing a career as a scientist initially, wasn't quite sure in what. I was thinking at the time maybe physics or chemical engineering or something like that.

Massachusetts Institute of Technology, 1967-1971

Middleton: So when I applied to schools, I applied to scientific programs. Applied to M.I.T., Princeton, Purdue, few other places. Really, my first choice was to go to M.I.T. I didn't apply to Caltech. It was a smaller school and I didn't think I'd get in. I got into M.I.T. I was hoping I would but wasn't necessarily expecting to get in there. I did manage to do pretty well on the SAT boards. I had done some work one summer for the dean of the school of science at Notre Dame, and he was pretty good friends with some of the people at M.I.T. He wrote a nice recommendation letter for me, and I suspect that if I was on the margin that might have helped push me over. That's how I got there.

When I started out I didn't have any particular focus--on biology or biochemistry or molecular biology which sort of was the foundation of biotech. These areas were not hitting their stride yet as technology in 1967. Biology was more about the classification of organisms, and doing genetics in fruit flies.

The first pivotal thing that relates to Genentech was when I first went to Boston in the fall of 1967, I had never been there before. I didn't do a college tour. People didn't do them so much in those days like they do today. So I basically just flew to Boston and showed up. It just so happened at the airport there were some M.I.T. upperclassmen who were there to meet incoming freshmen and take them to the campus. So I met these two guys from the Sigma Chi fraternity, Reid Marsh and Dave Kaiser who were from [Robert A.] Bob Swanson's fraternity--where he was already a member. They invited me to come over, have breakfast, spend some time with them, and so forth. This occurrence was totally serendipitous. I spent the first evening in the dorm, at East Campus, and then I moved my stuff over to Sigma Chi. They have a rush week right when you show up at the school, because they need the housing for incoming freshmen. They don't have enough room for everybody, so about a third of the students choose to live in fraternities. They have the rush week right at the beginning so people can decide where to live. I thought the system worked pretty well, because living in the fraternity turned out to be a great thing for me. I think most of the fraternities there were great living groups to support young freshmen who needed to evolve into a tough and rigorous academic environment. M.I.T. was a very tough school my freshman year, as it was not yet on a pass-fail system as it became later.

So serendipitously, I pledged the Sigma Chi fraternity, and my first roommate in September 1967 was Bob Swanson. There were actually four of us in the room: Bob, me,

Dendy Young, a sophomore from Rhodesia, and Bob Lindgren, another freshman from Illinois. Bob Swanson was my bunkmate. He was a junior at the time, a very friendly guy. He gave tours on campus, as a part-time job, so he would show us freshmen around campus. He was always very friendly to underclassmen, taught us the ropes, would get us dates, and would draft us into house social events. So that's how I met Bob.

It turned out Bob was a chemistry major. He was the only chemistry major in the house. There were ten members of my freshman pledge class. Most of them ended up going into engineering--electrical engineering, chemical engineering--one went into math, a couple went into management. I ended up in chemistry. In high school I really liked physics, but at M.I.T. we were already doing special relativity by the second course, 8.02, and the physics was all math, a mathematical science, not something you could physically touch, whereas chemistry was more of a real physical science which I personally could relate to. There were a lot of cookbook aspects to chemistry, doing experiments, a lot of lab work, but it was just for me intuitively easier. That's about all I can say about it. Because Bob was the only other chemistry major in the house, we developed a friendship. He would tell me about professors and courses, and we'd talk about areas of interest.

Bugos: But not chemical engineering?

Middleton: Not chemical engineering. I tried chemical engineering, and it had a lot of approximating about tanks, pressure vessels, distillation towers, etc. I found it pretty difficult, in that it was not to my liking. I just did pure chemistry, the science of chemistry--doing lab work, figuring out pathways for synthesis, understanding matter. When I look back at it, I would have to say it was a pretty general education--a good general background in learning what chemistry is and how it works.

M.I.T. Biochemistry Course--Biology 7.05

Middleton: One thing that did intrigue me-- I was taking other courses. I did take some chemical engineering courses, in terms of how you build a chemical plant or a refinery. I took some courses in astronomy, in materials sciences, and I took some courses in biochemistry. There was a course 7.05. It was called an introduction to biochemistry. About two-thirds of the students in the class were graduate students. M.I.T. didn't have a medical school, but they did a lot of medical research. The students who were planning to go to medical school took this course. It was an extremely broad-based and rigorous survey course about biochemical pathways, DNA, RNA, proteins, and the relationship to genetics. It had to do with the latest trends in genetics. [tape interruption]

So the first introduction I had to genetics and biochemistry and the whole field of science that resulted in Genentech was through this course--which I found to be just an absolutely fascinating course. One of the textbooks was James D. Watson's *Molecular Biology of the Gene*, which was a mainstay textbook early on. You learned about *E. coli* and the genetic code. This was in the mid-1960s, and the genetic code was just being deciphered. At this point it was maybe two-thirds deciphered. I remember in the lectures some of this was very logical in terms of how the proteins were made from codons, and so forth. There were still

some missing pieces in the puzzle at this time. They didn't exactly know what stopped the synthesis, and how the promoters worked to start the synthesis. It was really the key link to how chemistry related to biology. All biology is controlled by chemical processes. It could take something I knew something about--chemistry--and relate it to living systems in what was a total science, or a totally logical approach, though very early in its development. I found it fascinating, to the point where I even considered going to medical school. It was also a very tough course, a very competitive course, since there were many competitive students in there going to medical school. Ultimately I decided not to go to medical school. But at this point, in 1969, I could see that biochemistry was on a trajectory to becoming the science of the future.

M.I.T.'s Sloan School of Management and Harvard Business School

Middleton: While I was a chemistry major, I also enrolled in the Sloan School of Management, which was the business school at M.I.T.--largely as a result of Bob's model. He had formed his own strategy for getting a combined degree--a bachelor's and a master's degree--by combining an undergraduate program in chemistry and a graduate program in management. The management program was a two-year course, but you could structure it in a way that if you were done with all your chemistry requirements by the end of your junior year, you could use your senior year as the first year of participation in the Sloan School. By year five you would have completed the two-year program. You got everything done a year early. That's what Bob did, he got his bachelor's then master's at Sloan. I subsequently decided in my senior year, in the middle of my first year at Sloan, that it might be beneficial to go to another university for business school--assuming I got in. I applied to Harvard Business School, in the middle of my first year at the Sloan School, and managed to get in. This created a bit of a dilemma. They don't have any advanced placement to be able to receive credit for courses already taken. You've got to take all their courses, if you enroll, period. And it's a case method approach, very different from M.I.T. It's an experiential way of learning, whereas M.I.T. is more of a quantitative and rigorous approach--getting data, and correlating data, developing conclusions. It's more data-driven, whereas the case study method is more based on what I would describe as action scenarios based on a situation analysis. You have some facts, this is the situation, now, what do you do about it?

So our academic paths diverged here a bit. After getting my degree at M.I.T., I decided to go to Harvard Business School and went off and did that. Bob, when he was done with the Sloan School went off into the venture capital business with Citicorp Venture Capital Limited. Bob's story there is related in another oral history volume in this series.²

²See oral history of Robert A. Swanson, "Co-founder, CEO, and Chairman of Genentech, 1976-1996," interviews conducted in 1996-1997 by Sally Smith Hughes, Regional Oral History Office, The Bancroft Library, University of California, Berkeley, 2001.

McKinsey & Company, Rooming with Swanson

Middleton: I went to Harvard for two years and developed a strong interest in finance and entrepreneurial management. When I graduated in 1973, I ended up taking a job in San Francisco with McKinsey & Company, the management consulting firm. Originally I thought I'd want to go into investment banking, but the right offers didn't materialize to be of interest. I probably had a misimpression of what the investment banking world was all about anyway, so I'm just as happy that I went to work for McKinsey, which I considered to be a postgraduate education in business. Not having had any real business experience before graduating from Harvard, the opportunity to consult on business problems with managers and use problem solving skills, but learn firsthand how business organizations function and how to influence them--it was a pretty interesting undertaking as a way to start a business career.

Where the interesting part of the story comes together again is that Bob had been working at Citicorp in New York, by then for two years. He and Dave Arscott were going to be opening a San Francisco office for Citibank Venture Capital in 1973. I was talking to him in the spring when I was getting ready to graduate and go on to San Francisco. And he said he was going there, and so we decided well, why don't we get a place together when we get out there--that could be a lot of fun. We knew enough about each other to know we could stand living together. [laughter]

Bugos: You had done it before.

Middleton: Right. As undergraduates at M.I.T. Bob was a little quirky in some respects. But he was a good roommate, generally. He was clean, pretty organized, and a good arranger of social events. So we came out initially, McKinsey had us set up in the place of one of the senior engagement managers--someone who had been transferred to Amsterdam and had a really nice lease on a place out on Eighth Avenue that we just sort of picked up. It was a hell of a deal, costing next to nothing. We paid a little bit of rent and got to live there for two or three months. It was a nice place. So Bob and I roomed together there. And then we decided we'd like to get a place with a view of the Golden Gate Bridge, a two-bedroom place. Bob had this whole strategy of going around and finding buildings he'd like, putting a notice in peoples' mailboxes saying if you know of any places for rent please contact me. This approach was taking forever to come to fruition. So we went out with agents, and it was kind of funny how it worked. There was always something wrong with everything--not quite the right location, or parking wasn't very good. There were six or seven places that for one reason or another he didn't like. I was getting kind of nervous because we were just about running out of time on this other place. Finally I said, "OK, we'll try one more place. If I like it I'm going to take it, and you can go and find your own place." One of the people in my office, somebody with a family, was buying a home, and they had an apartment that was really very nice. On Broadway, 2275 Broadway, on the third floor--had a beautiful view in the front overlooking the bay and the Golden Gate Bridge, it had a two-car garage. It basically had everything. We picked up that place for \$450 a month in 1973. It became the apartment where Genentech was conceived.

So we became roommates again, for about two-and-a-half years, from 1973 through 1975. Bob did his venture capital thing around the area. The venture capital industry was

maybe 1 percent the size it is today. This was very early in the scheme of things. It was right after the founding of Intel. Bob did his deals, had his network of venture capital friends, many whom I would meet. I had my assignments with McKinsey. I was gone a lot of the time on assignments in Europe, in Canada, or in Hawaii. I decided by the fall of 1975 that I was kind of tired of traveling around. I didn't have any social life, was always traveling to distant locations for consulting assignments, and it was just getting old after two-and-a-half years. I used to do stuff with Bob. We'd go hiking on the weekends up at Mount Tamalpais, or up to Napa Valley for wine tasting (it's free!), or up to Stinson Beach, or down to Santa Cruz. We had a lot of fun. Bob's a fun guy to be with because he was very socially oriented. He loved to have a good time with friends, he's very light hearted and easygoing. So that worked out well.

Studebaker-Worthington, 1975-1977

Middleton: By the fall of 1975, I had decided to leave McKinsey and I decided to get a job--probably in finance, business development, or corporate strategy. I wanted to work somewhere where I could develop some equity with an organization, some relationships in an organization, and also have some stability in my social life. As it turned out I was on an assignment in New York and was talking to a headhunter back there, and he presented to me an interesting opportunity in business development as assistant to the chairman of the board of a company called Studebaker-Worthington, which was a conglomerate. It was the same company my father had worked for once, just a coincidence. When the Studebaker Car Company shut down in the mid-1960s there were several businesses that got merged together. There was an automotive parts company--basically it was a conglomerate of about twenty different companies, of which there were twelve public subsidiaries. So the CEO was a wheeler-dealer, bought and sold companies, took things public, bought them back again. To me, in 1975, this sounded like an MBA's "dream job" in business development, buying and selling companies. [tape interruption]

McKinsey & Company Contacts

Bugos: Before you leave McKinsey & Company, why did you go to the San Francisco office? I ask that in part because that was recognized as a hotbed of managerial innovation within McKinsey.

Middleton: McKinsey did a lot of recruiting at Harvard. At the time, I guess Harvard and Stanford were their two favorite business schools. Wisely, in my view, they recruit from everywhere now. It just so happened that when I interviewed with McKinsey--and I interviewed with a lot of places--the office recruiter was a fellow named Ted Demosthenes, who happened to interview me. San Francisco was the toughest office for a new MBA to get into. There were five or six spots there, and people would really love to go there to work, as you can imagine, because of the attraction of the city, and it's a great office with great people. The fact that I got invited out to San Francisco for an interview was very flattering. The people I met there,

I really liked a lot. They had a lot of bragging rights. They were hiring the top guys, like the guy who was number one in his class at Stanford Business School that year, Blaine Bowman. They had a great bunch of people, who were also very nice people in addition to being smart people. They were just a terrific group (all guys) my own age. No women at that point in 1973 had made partner at McKinsey.

My first officemate there was a graduate of Stanford Business School, Ted Hall, who ultimately spent his whole career at McKinsey and just recently retired. He became the managing director of the San Francisco office and became a guru on management. The authors of the best-selling book, *In Search of Excellence*, Bob Waterman and Tom Peters, also both worked there. Tom Peters was an animated figure, but I think after he went into private practice he became a bit of a showman. He was a very successful and bright man. Don Larson and John Katzenbach were the managing partners. So it was a terrific experience.

The hard part of it for me-- I think there were three of us who were single out of the new recruits. The single guys were the ones who got shuttled off onto long-distance assignments because arguably it was less onerous on their family life, and less costly for the firm to send us on long assignments. That being said, they did go out of their way to be nice about it. They always got you a place, always made sure you were taken care of in the local office that you went to. It was a great experience, except that you weren't afforded any social life. If you were dating somebody, by the time you came back six months later, she says "Well, I assumed you were never going to call me again." So after three years of that you figure you'd like to settle down somewhere and have a life.

New York, 1975-1978

Middleton: So that's what I did in New York. That's where I met my wife. I had some friends there from business school who I tuned in to. We did things together, they took me out. I ended up getting fixed up by one of them. My wife Carole was a fix-up, a blind date, from the wife of a friend of mine. So the "social program" part of my move to New York worked out pretty well. I must say I wasn't in a hurry to get married, but I did want to meet people and develop some relationships. I didn't date that many people, maybe three or four people the whole time I was there. And then by the spring of 1978, I got engaged.

News of Swanson's Venturing and Genentech

Middleton: While I lived in New York City in 1976 and 1977, Bob Swanson and I remained friends. [tape interruption] He would visit me when he was in New York on some trip to meet with his HQ at Citibank. Carole and I had some parties with friends, and Bob would occasionally be in town to attend. At one charity fundraiser I attended, I won a weekend at the presidential suite in the St. Regis Hotel. Of course, I was living in New York so it was no big deal. But I also won with that a night at the Copacabana. So Carole and I decided to

turn this event into a party. The presidential suite is big enough to have a party in. I invited Bob and asked if he wanted to come back. He said, "Yes." On that visit and some other visits he told me he had decided to leave Citibank to go work with Kleiner Perkins.

He and Eugene Kleiner had developed a friendship over a deal called "Antex." It was a failed deal, one of those interesting relationship things in life where people get to know each other through the "creditors committee." They were liquidating the company. Bob had convinced Eugene and his partner [Thomas J.] Tom Perkins to bring him on as an employee, limited partner, do some deals. They had Jimmy Treybig and [John C.] Jack Loustaunou, who were the founders of Tandem Computer there at the same time. Looking back, to my understanding, all the deals that Kleiner & Perkins's first fund had invested in went bust with the exception of the last two--Tandem and Genentech, which were phenomenal successes and more than offset everything else. So Tom and Gene were learning about venture capital, making a lot of terrible investments, then finally at the end of their fund getting it right with two phenomenal winners.

So when Bob went to work for Kleiner & Perkins, he started reading a lot about advances in biochemistry (he and I were both chemistry majors at M.I.T.). He was learning about genetic engineering and recombinant DNA, which were making news and scientific headlines in the mid-1970s.

Bugos: But only out of his own interest?

Middleton: Yes. I think he was following his own interest. He was looking around for places to invest and he was doing a lot of reading. Bob was a networking kind of guy. He'd literally read *Scientific American*. He read a 1975 article by [Stanley N.] Stan Cohen about recombinant DNA.¹ This article should be somewhere in this archive, because he told me it was important. Bob was very careful, he spent a lot of time reading, a lot of time thinking. Probably, someone like Tom Perkins thought, (my conjecture only) "Is this guy ever going to come up with anything? It's taking him forever. What's going on?" Bob was systematically going about understanding the technology, talking to some of the scientists, calling up the people who wrote the articles. He cooked up this idea for a venture, after he met [Herbert W.] Boyer. He was telling me about it. He didn't tell me all the details, but he said he had a scheme to take DNA and the knowledge of molecular biology and package it in a microbe and use it to produce insulin. A new way of making insulin. He asked me not to talk about it with anybody because he was filing patents, and he was very secretive about it. And I was thinking this was pretty interesting if it could really work.

Then he told me a little time after that that he decided to do this full time. "I'm going to be leaving Kleiner Perkins and doing this full time. And they're going to give me a little bit of money to pursue this. Maybe. I've decided this is a great opportunity." And I said "Well, that's nice." And we had several more conversations. He told me he had some good scientific results initially, and that he was really thinking about starting a company to pursue the commercial aspects of this work. Initially it was kind of a research project. There was a company named Genentech, but it was really just him and a telephone and a checkbook and

¹Stanley N. Cohen, "The Manipulation of Genes," *Scientific American* 233 (July 1975): 24-33.

some researchers working at the City of Hope, the University of California at San Francisco, and Caltech.

Chase Manhattan Bank

Middleton: At the time I was thinking, "Wouldn't it be nice to move back to California?" I had been in New York for three years--after Studebaker-Worthington-- I was there for two-and-a-half years. Their career path was to move out to one of the subsidiaries in a financial job, probably as a controller. And I interviewed for a couple of those jobs. One of them was in Buffalo, New York, and it was at one of these old stodgy companies. I thought this was really an unexciting career path. I decided to make another job change.

I took a job with Chase Manhattan Bank in corporate development and strategy working for the CEO in a small planning group. The strategy work was interesting. There's only so many businesses a bank can get into because they're heavily regulated, but I found commercial banking to be a dull area. I had a decent job, I was making a good living, very collegial. But I was kind of unsatisfied, not thinking that anything I was doing there would really have much of an impact on the world. Whether I showed up for work or not probably wouldn't really matter much to anybody.

II GENENTECH, INC.

Introduction to the Company

Founding the Genentech Management Team

Middleton: In February 1978, Bob told me he was going to be building up a management team at Genentech. He was looking for someone to run the company's financial and administrative functions. You know, he had a very conventional view of businesses. It was almost humorous if you think about it now. It was going to be him as the CEO. Then he hired a head of manufacturing. He had the scientists already doing science. He needed to hire someone out of industry to be the V.P. of manufacturing. And he had found that person--a Ph.D. out of Squibb, Dr. Brian Sheehan. He was supposed to be able to grow vats of bacteria--or yeast, I forget which microbe--which was the process historically used to make antibiotics. This was going to be the same process needed to grow these genetically engineered microbes that would be engineered to make human insulin. So Brian was brought in. And somebody else to run marketing. There was nothing to market, of course, but that was the way you conventionally organized a company, and this person could do "marketing deals."

Then he needed someone to run finance and administration. He asked me if I knew of anybody who might be interested. [laughter] It was kind of a leading question. So I said "What about me?" Bob said, "Oh, you'd be interested in that?" Like when the headhunter calls up and asks "Do you know of anyone who might be interested in this job?" [laughter] And I thought, "Wow, this is pretty interesting. I don't understand if this thing is going to work very well. But it'd be nice to go back to California. Even if it's a total bust in a couple years, I could do something else. I'm not concerned about taking a risk at this point in my career."

I knew he had spent a lot of time on it, and was a reasonably smart person. He also told me he had received venture capital commitments for 4 million dollars, which was pretty impressive. I came out and interviewed a very short list of people. Herb Boyer, Tom Perkins, Brian Sheehan, and Bob. Bob, Herb, and Tom constituted the board of directors. Brian Sheehan was the only other officer, V.P. of manufacturing, at the company. I seemed to get along with everybody.

Negotiation of Job Offer with Genentech

Middleton: The negotiation on my job offer at Genentech in retrospect was humorous. I did the math and everything. Bob said, "I guess we'll offer you forty thousand dollars a year." I was making thirty-eight thousand at Chase as a vice-president in 1978. And it was a startup company, so I thought that was pretty reasonable. He said "We'll offer you forty thousand a year because that's what I'm making and I'm the president and I can't pay you more than what I'm making." I said, "That sounds logical." He offered me five thousand shares. He said "It doesn't sound like that's a lot, but we're gonna split the shares ten to one, then you'll have fifty thousand shares." I did the math on this and it was about 1.25 percent of the company. I thought, "Gee, that's pretty crummy. Here he has half the company and I get 1.25 percent." I was disappointed in the amount of stock, but I wanted the job. I talked with some of my friends in venture capital. We went back and forth a couple of times. He said, "My final offer is one hundred thousand shares, ten thousand at the time." He said, "If you don't accept this, I'd like to part as friends, but this is my final offer." So I moped around a little bit and said all right. And so that was the offer--2.5 percent of the company. So after the ten for one stock split I was to receive one hundred thousand shares, vested over four years.

Bugos: What had you been advised would be an acceptable offer?

Middleton: What I wanted was 5 percent. Bob told me was at this stage that would be way too much. And I really didn't have a clue. Five percent didn't sound like a lot to me. Turns out one of my roommates at Harvard was in the venture capital business, so I called him up. At the time he was in northern Mississippi or somewhere, and I tracked him down. I said, here's the job, and said I think I ought to be worth about 5 percent. One of the reasons I had this perception was that Bob was a close friend, and our abilities were pretty much equal, in my view. Scholastically I had gotten better grades than he did, maybe I was a bit smarter than he was. That was kind of how I felt about it anyway. So how could there be such a huge difference? I understand that he set it up and all, but still 5 percent was not a lot. Anyway, a bigger number just was not in the cards. So I had been advised. I was trying to get 2 to 3 percent and he ended up giving me two. When I look back on it now, being in the venture capital business myself, at the time it was a pretty fair offer for a top CFO candidate. That's the most you would offer somebody in a venture-backed situation today. But at the time I didn't really have the data. And of course, I didn't have a clue that the thing was going to work out as well as it did. So that was how I got hired at Genentech.

When I returned to San Francisco in 1978, Bob was still living in the apartment at 2275 Broadway I had found for us in 1973. When I moved out of there and out to New York, he took on Brook Byers as his roommate [laughter], who was the next guy to join Kleiner Perkins after Bob left. Bob mumbled about how Brook was kind of messy. Not as neat and tidy as me. Anyway, Brook moved out into his own place. So Bob was basically living there alone, but he was acting as a hotel. Whenever he would have scientists in town or whenever he'd be recruiting, people would always be there staying with him. They'd sleep on his couch or in the extra bedroom. When I came out I sort of moved back into the

place too. I slept on the couch for a while. Then I moved over to Shelter Creek Apartments in San Bruno, where the V.P. of manufacturing, Brian Sheehan, had lived for a while after he had been hired. That's how I got to Genentech. That was 1978. Bob Swanson offered me the job in April of '78 and I started work as Genentech's CFO on August 1, 1978. That was my history with Bob, which goes back a long way, to 1967.

Bugos: So the party at the St. Regis was the first time that he mentioned to you that he was looking at recombinant DNA? And what was the date of that?

Middleton: Let's see. I moved back to New York in November of 1975. That was in 1976. The company was formally established in April of '76. Actually before the St. Regis party, we had a dinner at a restaurant on the Upper East Side. I asked him what he was doing exactly. What I was doing at Chase was pretty straightforward to talk about. What he was doing was more interesting because it was very different. So he told me about the idea of making genetically engineered insulin, and why that was an attractive market. He didn't tell me much at all about the technology, except to say that you program the bacteria with the DNA code. So I just sort of listened. I thought, if it works, it'd be a good idea.

But I guess I was a little skeptical, as a lot of people were, believing that if this was such a great idea, why haven't the big pharmaceutical companies been doing it. They spend billions of dollars a year on R&D each year. What's the probability that a handful of people, some academics and some other people, could really do this kind of science without the kind of research and development resources that you might need to put behind it? That was before I understood the lesson that most innovation comes from small companies. It's what I believe today.

Just an observation. For the first three or four years we had literally every pharma company in the world traipsing through the place, hearing our presentation. We got to see most every one of them, Eli Lilly, Johnson & Johnson, Hoechst, Novo. They obviously thought this is a really big deal, what we've got here. And obviously, they aren't doing it. By then we had patents, and a few successes. This success here [points to a framed copy of the *San Francisco Chronicle* with a headline "New Insulin for Diabetics"], I believe that was in September of 1978. That was literally two months after I joined. So things were pretty far along. There was a proof-of-concept molecule called somatostatin that was expressed prior to insulin, and that worked. And they had to come up with a fusion protein to make it long enough so it would precipitate out.

I got a little bit of comfort from talking with Herb Boyer, who I knew was a famous scientist. Herb's a very easygoing guy. He projected a lot of confidence in being able to do this work. The other thing that struck me was that he was a very poor scientist (monetarily speaking) at the time. [laughter] He drove me around in this old Porsche that was rickety-rackety. He was a warm person with long, curly hair, and a brown suede vest which he always wore. So I thought Genentech would be a very big deal for him.

Swanson's Relationship with Kleiner & Perkins

Bugos: Can I ask you another thing about Bob? It's not clear what his relationship was with Kleiner & Perkins in that December, January 1976 time period when he was forming this business plan--whether he was actually on salary, or if Kleiner & Perkins had let him go, if he had any expectations of getting back with them. And ultimately, his relationship was stronger with Tom Perkins than with Eugene Kleiner. What do you know about all that?

Middleton: Tom Perkins told me that one of his biggest mistakes was in cutting Bob loose without a salary. I don't think at the time he had a tremendous amount of confidence in Bob. Tom is a man of action and a bit of an impetuous guy. Probably (my conjecture) he may have said something like, "Fine, if this is what you want to do, great. When you have it together come back and talk to us, and maybe we'd like to put some money into it." He decided not to pay him a salary, so Bob was off on his own. Bob told me he collected some unemployment compensation while he was doing it. Perkins would probably be the first to say that was a bad move on his part. If he had continued to pay him while he was doing it, he could have bridged the salary and some other things and converted that into more stock. Probably, Bob would have been more favorably inclined to give him a better deal than he got.

Bob did get the thing pretty well financed on his own. Initially he got some money from Kleiner Perkins, I think it was a surprisingly small amount, only two-hundred thousand dollars. A small amount of money, even in 1976. I believe Kleiner Perkins put in a small amount of money on the next venture round. The most they ever owned of the company was about 20 percent. I think the fund, Kleiner & Perkins I, was about out of money; it was at its end. Genentech may have been the very last investment that they made. But I also think Tom thought Bob would need to come back to him for more money, and he could buy more of it then. Instead Bob went out and raised money from Mayfield [Fund] and Inco [Venture Capital Management]. There was a guy there--whose name I don't remember--[Daniel Adams] who was the lead investor on the second round. Then Kleiner Perkins put in a little bit, but the valuations and terms were decided by these new investors.

That being said, Bob and I both had a tremendous amount of respect for Tom Perkins as a highly visible promoter, marketer, strategist, and financier. I believe that Bob had a warmer personal relationship with Eugene Kleiner, the other founding partner of Keiner Perkins who's just a tremendously nice guy, an intuitive, very low key guy. And I think Bob felt that if you needed to climb mountains, and you needed to go out and establish a beachhead somewhere new, that Tom was the guy to lead the charge. He was capable and adept at promoting and being a front man for the company. He was the chairman. I'd have to say that's all very true. He was a tremendous inspiration. He's also a high-profile guy. He drives fancy cars, lives in a big house. Gene is low key. Tom had a think big, spend big, make it big mentality, which was the mentality that Bob was interested in himself, personally. And which he was inspiring everybody else to. There's one story I heard--Bob was taking the founding scientists to Tom Perkins's house for dinner in Belvedere. It's a pretty spectacular place. And he said to all the scientists, "See guys, this is what we're working towards. Right here." [laughs] I think the scientists were a bit surprised to hear that, but they were impressed. It was all part of the dream at the time. "Yeah, right, when I win the lottery," was probably what they thought. It was that type of impression.

Could he have come back? I think Bob had decided to leave venture capital. The way he described it, he was tired of sitting on the sidelines; he wanted to be in the game. The quarterback is in the game and running things. The coach is on the sidelines and doesn't get quite the same thrill of victory as the guy throwing the passes. He wanted to be an entrepreneur. I think he was a hell of a lot better entrepreneur than he ever would have been as a venture capitalist. I'm sure he would have been a fine venture capitalist, but he made a tremendous entrepreneur. That's how his skill set really evolved. He made the choice, and Perkins didn't really help him out a lot at first was my understanding.

Bugos: So let's jump forward to August 1978. The venture capital rounds were concluded and Lubrizol was the only placement to come after?

Middleton: Right. In April 1978, you can check the date, Bob raised a round of venture capital from the Hillman family, Inco--Mayfield put in a little more money. It wasn't a lot of money. That round was \$3 to \$4 million. I think the first round was around a million.

My First Day on the Job--August 1978

Middleton: The first day I was on the job, I showed up in my coat and tie. Bob and I were the only two people in the company who ever wore a coat and tie, because we were former finance people. He always believed it was the right image, but we had no expectations that any of the scientists would dress like that. They dress however they want, and that was fine. Being the finance guy, I had to deal with the bankers and was supposed to be a business guy, so I wore a coat and tie. Never bothered me.

The first day I showed up on the job, this was in South San Francisco, 460 Point San Bruno Boulevard, which is now called One DNA Way. It was the corner building of a warehouse, with tilt-up building. Bob had this corner of the building staked out, a couple of labs, three more offices, maybe four, one for himself, one for his finance guy, one for his manufacturing guy, one for his marketing guy. Then there were two labs where all the scientists were working. Then we also had a class III containment facility which everyone thought you were going to need to do recombinant DNA work. Then in the back he had an organic chemistry lab.

First day I'm on the job, a big truck rolls up to the loading dock in the back of the warehouse. The truck driver comes in and says "I've got all your lab supplies here, but where's the guy to unload it? I drive the truck, but I don't unload it." There was supposed to be somebody there from a different union to unload the truck. He either didn't show up or some wires were crossed and we forgot to arrange for him to come. Bob said, "OK, we're all going to unload the truck now." So first day, I'm unloading the truck of all the lab supplies. It brought home the whole concept of-- [laughter] here you are in a startup company. Very hands-on type of environment. If you don't do it, the truck's not going to get unloaded today. Maybe the guy will drive away and you won't get your lab supplies. I thought that was wonderful symbolism. It's what it's like to be an entrepreneur. On the first day on the job, you unload the truck.

The other thing that was very funny about the location--we were right next to a movie distribution center with inventory. These tilt-ups contained a series of individual warehouses. This guy next to us had all these old-fashioned, sixteen millimeter movie reels. I think many were soft porno. So you'd go out the back of the Genentech door, which we had all built up, and there's all these shelves with all these movies. That gave it a kind of unsavory atmosphere. Genentech ended up cleaning all that stuff out and taking over the whole building over the next three or four years. They got those original two buildings which were originally warehouses. Over time they cleaned everybody else out of there and turned them into biotechnology laboratories.

Middleton's Duties and Accomplishments

Early Rapid Growth

Bugos: So, spending money on the facilities--

Middleton: Was a very big deal.

Bugos: And something you would have been directly involved with?

##

Middleton: Yes. My initial job in 1978 was vice-president--finance and administration. I was responsible for purchasing, human resources, facilities, finance and accounting, and also the treasury function. Back in those days there were no personal computers, so people did the general ledgers by hand, if you can believe that now. We had ten people involved in the accounting function for payables, receivables, payroll, general ledger, and so on by 1981. Today you could do it with two people.

Genentech was always building and growing. The six years that I was there the headcount grew about a hundred percent a year. When I started it was obviously a small number. At the end of the first year I was there, there were twelve people. The next year twenty-four, the next year fifty. Then a hundred, then two hundred. When I left there were about six hundred people, in late '84. All those people had to have a place to work, so we were always building labs, building offices, leasing more space, trying to figure out how to get more space, doing recruiting, negotiating relocation, and arranging employee benefits.

Working with the landlord, working with the facilities team, designing the labs, laying out floor plans--that was something else that was a big deal. Bob very much believed in the group-think approach to designing facilities. You have a design, you'd lay it down, everyone would get involved, and everyone would tweak it. It would take a while. You wouldn't quite know when the whole thing would get blessed. Then finally, you figure how much will it cost and say, "Let's build it."

We had a good banking relationship with Bank of America. They leased us practically all of our lab equipment. I don't know why the bank left this sector, but they're not around anymore. But if you'd need to buy any kind of hardware equipment--centrifuges, refrigerators, cooling bays, hoods--they would lease all that stuff to us. We ended up with probably 30 to 40 million dollars in leases over the five or six years I was there. I did all the banking relationships, negotiated all the credit arrangements and leasing deals. After four years, Bank of America Leasing sent me a gold-plated telephone hand-set cover (in plastic) so I could really feel important! The Genentech finance department started with a single, part-time outside accountant, then we hired some inside accountants and built up that function.

Automatic Conversion of Preferred Shares

Middleton: On the financing side of things, Bob had very cleverly engineered for this preferred stock to be sold--this was a good example of how he would focus on details, and Kleiner Perkins wasn't so concerned with those details at the time. He had a provision whereby the preferred stock would convert into common based on the passage of time, or based on raising so much money. Which is not the way it's done by venture capitalists today. Today you have a series A round, series B round, series C round, etc. He had just a series A round. The trick is that if you're going to sell the business for not a huge amount of money--around 25 to 50 million dollars--or maybe \$10 million, you'd really like all of the shares to be common shares so you can divide up the proceeds equally between the common and preferred shareholders. Otherwise the preferred stock gets a preferential cut of the proceeds. He designed the preferred stock so it would convert by time and by revenues.

Bugos: Could I mention that I believe the provision that eventually kicked in was the one specifying that Genentech had gross receipts of 2 million dollars in that fiscal year. In December of 1979 I believe it converted.

Middleton: OK, that rings a bell. We did get that contract revenue from Lilly. That deal was signed in 1978, and more than \$2 million in revenue was earned in 1979.

Negotiations with Eli Lilly, Novo Nordisk, and Hoechst for Human Insulin

Middleton: I participated in those negotiations, but they were pretty far along when I got there. I would like to acknowledge the contributions of Tom Kiley who worked on them pretty much from the beginning. Tom was outside counsel in the areas of intellectual property and contract negotiations and he eventually joined the company. But he was working for Lyon & Lyon for about the first two years that I was there. Neil [Cornelius] Pettinga, a senior vice-president, was the chief negotiator for Lilly. I don't know that the company has ever disclosed those terms. Under the terms of the contract they were supposed to be secret, even though by now the royalties would have ended, the patents would have expired on human insulin (in 1999). Competitively, it was very important to Lilly. They got such an unbelievably good

deal on it, in retrospect. They paid 3 million dollars in milestones and a high single digit royalty (8 percent). They made billions of dollars on this deal. I remember Neil Pettinga was saying "Oh, you guys are such tough negotiators." [laughter] He just complained and complained. "Lilly never paid so much for anything, blah, blah, blah." He was so upset at the terms, he couldn't enjoy the toast. Swanson had gotten some champagne. He told me the next day it was a bad omen--it was a bad omen for the relationship with Lilly--because the champagne was flat when they opened it. That relationship put Genentech on the map. That was the idea. It was an endorsement for a new technology by the leading producer of insulin in the world. It gave our company overnight credibility in the commercial world. And the deal left Lilly's principal worldwide competitors, Novo Nordisk and Hoechst, out of the market for human insulin.

It was a good product for Genentech to off-license, because it had major distribution and pricing issues. It is truly amazing to think that the first product--human insulin--to be manufactured by recombinant DNA was a very low-priced product. It was not a thousand-dollar-a-dose product. It sold at the drugstore for twelve dollars a dose or ten dollars a dose. So they had to scale up to a pretty large scale to get the sort of margins they needed to make money on it. That wasn't something that would have been easy for Genentech to do, even if they had the money for it. So it was a good one to off-license, but Lilly ended up getting a tremendous deal. At least Lilly had the foresight to do the deal before the announcement that Genentech had succeeded in making human insulin with recombinant DNA technology, in September 1978.

I believe the company that really blew their opportunity was Novo. Swanson had approached them first about a deal, and they basically said, "Come and see us after you prove it works." I don't think Swanson ever talked to them again after that. They could have had it for Europe, and they basically walked away from it--they completely missed the opportunity. I later heard that the research guys who turned their backs on this opportunity ended up getting fired in the end. The arrogance of the German researchers from Hoechst was even worse. I remember the guys from Hoechst came in and the research guy lectures us, "Well, we looked at this, and we don't think it's ever going to work, for this reason and that reason." You kind of wonder. Why did this guy travel halfway around the world from Germany to talk to us, to tell us that our technology wasn't going to work? What was the point? The arrogance was incredible. [laughter]

Job One as CFO: Raising Money--Lots of It

Bugos: Let me ask you a broad question, to give some structure to the rest of the conversation. You came in 1978 and left in 1984. Could you give me a synopsis of your career there, how your job titles changed, how your actual responsibilities evolved, the things you were most proud of accomplishing while you were there?

Middleton: I consider my main contributions to Genentech were threefold. First, I was heavily involved in raising money for the company. I quarterbacked Genentech's IPO process in 1980¹ and wrote much of the prospectus, with counsel's help. I'd acknowledge Ken Guernsey's significant help--at Cooley Godward. I helped pick the bankers, helped raise a ton of money

¹ Mike Johnson, "Behind Genentech's Decision to Go Public," *San Francisco Chronicle*, August 20, 1980.

for the company. This was not a sole effort. Obviously I had a great product to sell. Bob was involved with it, Tom was involved with it, but I'd have to say that I did the yeoman's amount of work on it. Just like Kiley can take credit for a lot of the patent strategy, I feel I can take a lot of credit for the financial strategy for the company. I did the Lubrizol deal, which raised \$10 million for them in private equity, and brought Don Murfin to the board, and took the company to about a 60 million dollar valuation. The IPO in which we raised \$38.5 million, at a 262 million dollar valuation, in 1980, with H&Q [Hambrecht & Quist] and Blyth Eastman Paine Webber. Subsequent to that we did several private placements, one with Corning Glass to do Genencor¹, which raised another \$20 million. In 1982, Bob and I traveled to Sweden and did a 20 million dollar placement with Swedish investors. Tom Perkins, Bob, and I traveled to Japan to raise an 8 million dollar private placement with a number of Japanese investors. This capital was raised to fund the infrastructure development for manufacturing; to expand our product base and to get us into the making and selling business.

The R&D Partnership Financing Program

Middleton: My second major financing contribution to the company, which I think involved a fair amount of creativity, was the R&D partnership program. The big challenge for Genentech in the early 1980s was what I'd call bridging the cash valley. Look at the amount of money that you had to spend in clinical trials and to build manufacturing. It was an enormous amount of money, over \$200 million we estimated. It was more than you could raise at the time in the public markets. If you were to get it from large corporations, you'd end up turning over the products to them, and they would have gotten all the downstream benefit from making and selling the product. Genentech wanted to get into the business of making and selling itself and, so, needed to come up with a way to fund clinical trials on its own. I introduced the notion of the clinical R&D partnership, which raised money through an external partnership, which then contracted with the company to do the R&D, ended up owning the results of the R&D, and then licensed the products back to the company in return for a royalty.

Now why would people be interested in that? At the time, in 1982, the tax laws² allowed you to pass along the tax benefits of the R&D expenditures to investors. If you're an investor, investing a hundred dollars into an R&D program, you were allowed to write off that hundred dollars against your personal income. If you were in a 50 percent bracket or higher, which a lot of people were in 1982, that meant that after taxes you were investing fifty dollars. So if you were investing fifty dollars and you could earn a royalty of say ten dollars every year, once the product was approved, then that was an annual cash on cash return of 20 percent in this example. If it worked. What did Genentech get out of it? It got total control over its clinical programs, the money to pay for them, and total ownership of the product rights, in North America primarily, to be able to manufacture, market, and build a pharmaceutical company!

¹See appendix F to this volume.

²This financial benefit was subsequently eliminated by the Tax Reform Act of 1986, which did away with most investor tax shelters. [F.M.]

The tPA partnership, which was done in 1983, raised a 34 million dollar partnership. Genentech sold the rights in Europe to Boehringer Ingelheim; the rights in Japan were sold, I believe, to Mitsubishi. So they were able to get that money into the company, as well, to fund the clinical program. The clinical programs for tPA cost a lot more than \$34 million, but it was one piece of the puzzle that allowed them to keep tPA. tPA was the first big product that Genentech introduced. It did not end up being a billion dollar product like we hoped, but it was a several hundred million dollar product. It created a lot of excitement in the medical community and certainly put them on the map commercially. We did the same thing with growth hormone, which was the first product Genentech introduced with its own salesforce in 1985. And gamma interferon, which is now having its second life through InterMune Pharmaceuticals, a company which we (Sanderling Ventures) are the financiers of. I'm pleased it has a second coming there--having made an excellent return once it was licensed away from Genentech. Through the R&D partnerships we raised about \$125 million to fund the company's clinical programs and turn them into a commercial entity. The same strategy was copied by all the other biotech companies--Amgen did Amgen Clinical Partners and got G-CSF [granulocyte colony-stimulating factor] through. George Rathmann, the founder of Amgen, would say he did this because Fred Middleton and Bob Swanson did one at Genentech. Biogen did one, Cetus did one, everybody did one to conduct their own clinical trials for product development.

Bugos: And the third principal contribution you made was?

The Pay-As-You-Go Strategy

Middleton: I would consider my third major contribution to be Genentech's corporate financial strategy. And the corporate strategy had to do with designing an approach that would allow investors to put a high valuation on the company. What I reasoned there, and what I convinced Bob to do-- This was going to be an expensive business to get into. We could lose a lot of money. But we had a very broad technology. If we could sell off parts of it through corporate deals, we would be paying as we go, so that we always are profitable. Investors will feel much more comfortable with this approach than if we are losing a lot of money each year. The conventional wisdom at the time was that it was too expensive for a new company to get into the pharmaceutical business. It was just too expensive and it just couldn't be done. People were highly skeptical. What we managed to do with our corporate financial strategy was to make Genentech always profitable. It was profitable when it went public, it was profitable for the next five years. Pretty much every quarter. I look back at this and think this is an absolutely phenomenal accomplishment. I wouldn't try to do it again. Fortunately, today investors don't require this kind of financial discipline in a startup company. I think it's impossible to do again. This was at a time when we were spending enormous amounts on facilities, on hiring, on clinical trials. One of the advantages of the R&D partnerships is that the way they are accounted for is as revenue, so they come in as contract revenue. Somebody looking at an income statement can see--this company didn't make a lot of money, it made four cents a share. But they have a ton of R&D, and it's all being paid for by corporate partners and R&D partnerships. So these guys don't need to raise any equity. Shareholders come out really well because the equity dollars are being preserved, and the equity owners will own all the profits from these great biotech products when they are marketed in the future!

What is not true now, but was true from about 1980 to 1988, Genentech's first eight years as a public company, is that Genentech's valuation was way more than anybody else in the industry because of this strategy. Everybody else was losing money. We were making money. So investors felt these guys must know how to operate a business. Investors would think, we don't know whether Biogen or Cetus is going to be around in three years because they lost a ton of money last year and are using up their cash reserves funding these losses. Maybe they won't be able to raise any more money from investors and maybe they'll have to shut down. So I believe the pay-as-you-go strategy was one of my major accomplishments. I don't know that the same strategy would be necessary today, but it worked well then. Because we had such a high value, we were able to go out and raise fairly large sums of capital in the public markets--several hundred million dollars worth. So those are the three things I consider my important contributions.

Operating Responsibilities

Bugos: So the next part of my question is what, on a day-to-day level, what actually were you doing? There was administration in your title, corporate development. Again in broad terms, then we'll go back over details.

Middleton: OK. My initial title was vice president of finance and administration. It covered the financing that I talked about which was really the creative part of what I was doing, and the most demanding part. On the operating side it included human resources, which was managed initially by Fred Ruffin. It included the controllership and financial reporting function, which was managed by Patricia McGrath, who was actually a classmate of mine from business school and joined us as controller. It included the treasury function, which was managed by Shirley Clayton, who also handled investor relations, the banking, and dealing with Wall Street on a day-to-day basis. Shirley was the vice-president who joined us from Bank of America, our commercial bankers. It included purchasing and facilities, which was managed by Dave Pfaff, who joined us from Barnes-Hind Pharmaceuticals. At one point I had ninety-five people reporting to me which, for somebody who hadn't had any management experience three years before, was pretty demanding. The people who I hired were more experienced managers in terms of day-to-day management than I was, really, so it worked out fine.

Around 1982, we concluded we should divide up some of these functions. So we created an administrative function that took the facilities and the purchasing and the HR, and a lot of the control functions, and organized them together. Then I became CFO, vice president of finance and corporate development. I was working mostly on big deals for the company and financings on Wall Street. As I tell people, there were only three people who Bob would allow to talk to the media--there was me, Shirley, and him. Nobody else could say anything. [laughter] Fortunately, I had an ability to remember everything that went out on every press release, so I could always craft together a story based on what I already knew was public information rather than saying something that I shouldn't say. Generally it went pretty well. We had good relations with Wall Street, and developed a good following as a public company.

Joint Ventures

Bugos: From '82 to '84 was the time when most of the joint ventures got going. Would the joint ventures have been part of your purview as well?

Middleton: I worked on a lot of them, as part of a team. We did a number of deals in Japan. Bob Byrnes, V.P. of marketing, worked on those, and Tom Kiley. We did a number of deals in agriculture, in industrial--we did some things with Lubrizol. Baxter Travenol Genentech Diagnostics--that was one that didn't work out. I was on that board. Genencor was one I participated heavily in, where we spun off all the industrial applications of the technology. That was a company I founded and am still working with those guys today, like [Robert E.] Bob Leach. That was a wonderful relationship, with Corning. The former CEO of Corning, Amory Houghton, became a United States congressman. He used to be on the Genentech board.

I was the corporate secretary for Genentech for a number of years and went to most of the board meetings. I got to rub shoulders with most of the board members--Dave Packard of Hewlett-Packard, Dave Tappan, the CEO of Fluor Corporation, Don Murfin from Lubrizol, Amory Houghton, the CEO of Corning. Bob put together a good board. By 1984 I was more focused on the deals and the joint ventures.

Leaving Genentech

Middleton: To get to the end of the story. I had done everything at Genentech, after six years, that I could imagine a finance person doing in a career. Genentech was an incredible opportunity for me. Since I wasn't really in the line of succession--Bob was roughly my age and we were good friends--I decided to give Wall Street a try. Through the Genentech R&D partnership program, I had become a leading expert on this type of financing vehicle, and several of the large investment banks were interested in setting up investment groups to do R&D financing. I received offers from Paine Webber (Genentech's banker) and Morgan Stanley. I decided to accept a position as president of Morgan Stanley Ventures. We put together a fund to do R&D partnership financing. That's why I left Genentech. Not because I didn't think it's a great company, but because the skill set that I had developed seemed to be a skill set that I could leverage on Wall Street. And I had always wanted to work on Wall Street. I tried working there for two or three years then decided that was enough.

Bugos: So that was in New York?

Middleton: Actually, it was in San Francisco. They wanted me to move to New York, but I said I wasn't interested in going there (again). So, they set me up in the San Francisco office.

Genentech in Historical Perspective

Bugos: OK. Let me ask one more general question. That is to think as a historian. Looking back from your subsequent experience in starting biotech companies and seeing the industry evolve, what would you see as the Genentech model for the industry? What sort of patterns did Genentech set that other companies have followed? Or, what was unique about Genentech?

Middleton: OK. I'll give you my short answer. This came from Bob and from the original management team; Bob deserves the lion's share of the credit. First of all, the legacy they set--it was doing high-quality science in an industrial setting. Which sounds a little Pollyannaish, but it really means world-class science. The people there are world class scientists. They can participate in scientific meetings, they can publish papers, they are the best at what they can do, they are highly regarded. Even today--one of the great accomplishments in the post-Roche-acquisition years--they have preserved this culture. They do have, still, the most productive R&D organization in biotech. People just don't consider Amgen to be in the same league, even though they're a great company. So excellence, which means recruiting excellent scientists, allowing them to publish, allowing them to prosper, creating the right environment. The fact that Art Levinson is leading the organization today, having come out of that organization, is a tremendous tribute to the legacy that was left. People are motivated by money and adventure, but a good scientist is motivated more by doing a good job, and by the motivation to produce worthy health care products. People there have a mission to do that, beyond the money. Call it the corporate mission to do good, to create valuable therapies, medicines.

I think hiring really good people is also a good legacy. "Don't be afraid of hiring people better than you," Bob would always say that. Creating that excellence in recruitment. They always try to get the best people in any given area. That would be my view of what they have left in terms of a legacy. It's a legacy that survived even an acquisition. As long as they keep that engine going; I don't think they're running out of gas. They're going strong.

The FIPCO Plan

Corporate Strategy

Bugos: Good. Thanks. Then let's go back to 1978. The business plan for December 1978, from my understanding, was the first time that Genentech talked about becoming a FIPCO--a Forward Integrated Pharmaceutical Company. Were you part of that discussion?

Middleton: Oh, absolutely. That was a part of the corporate strategy. I talked about the strategy of financing. But the other part of it was the FIPCO strategic plan. That was internal stuff. The FIPCO¹ plan I worked heavily on.

##

¹By FIPCO, Fred Middleton means a fully integrated pharmaceutical company.

Middleton: We looked at some models. We looked at Syntex. We determined that all it takes is one really great product to get you on the map, and then the valuations that you achieve can be pretty spectacular for your shareholders. Then you create the engine to generate the profits to reinvest in R&D, and so on. You can go on and develop a franchise in the marketplace.

The other thing was that if you look at the valuation of the company, and you look for people's expectations, people were really expecting big things, though they didn't really know how we were going to do it. If you project out, if you look at what the company is valued at today, and what you have to do ten years from now or five years from now to justify that, people were really expecting us to become a FIPCO. Because there's no other way that you could justify the kind of valuation that we had. [laughter] It was like the high road and the low road. People were betting on the high road. There was no low road. You could find one, but then you'd just be creating disappointment. The road for us was the high road. People had high expectations for us, and we did for ourselves. We had to figure out how to achieve the high road.

Bugos: Were there other companies that were taking that low road?

Middleton: In my opinion, Biogen took the low road in the 1970s and 80s. They licensed all of their products. At one point they were our financial equal, and technologically. They had a huge number of big name scientists associated with them. But they licensed all their products. They licensed interferon, they licensed insulin, and they licensed hepatitis--there's nothing left for them to sell. At the time, they were selling off everything to have enough money to keep going. Ten years down the road they were collecting royalties, but they weren't making and selling anything. At that point [James L.] Jim Vincent decided "Gee, we should really have some products of our own. We should be making and selling. Then maybe this company will have a future." He eventually turned it into a FIPCO. They ended up belatedly pursuing the strategy.

Growth Hormone

Bugos: In terms of developing the FIPCO strategy, did you compare and contrast the Lilly and Kabi deals with Genentech? With Lilly you essentially outlicensed everything; with Kabi you kept the majority of the rights.

Middleton: Yes. The strategy there--growth hormone was perceived to be a product that we could take to the market ourselves. It was also perceived by people to be a very small product. Nobody believed, at the time we went public, that growth hormone was going to be more than a 30 million dollar a year product. You can look at the projections to see. We saw something called constitutionally delayed short stature, which we thought could be a much larger patient population than just hypopituitary dwarves. The analysts and doctors all said "We don't see that. That's all a pipe dream." It turned out to be as big a product as tPA, in the end, at several hundred million a year. But the number of pediatric endocrinologists who prescribe it are relatively few. It's a product that sells for a lot of money--ten, twelve thousand dollars a year. Ten, fifteen thousand patients, relatively small patient population. Not really a great alternative to it. Lilly got into that business as well, so there ended up

being some competition. But Genentech focused on that and said "This is a good first product for us." So the FIPCO strategy then was achieved through the use of the R&D partnership.

Gamma Interferon and tPA

Middleton: The next big product was actually perceived to be gamma interferon, but unfortunately the clinical trials for that on cancer didn't work out. It never quite lived up to peoples' expectations. That was a product in search of a therapy. It turned out being very small for Genentech, where they never did more than \$5 or \$6 million a year on that, because it just got approved for a tiny little indication, and as a cancer drug it didn't work.

But tPA was right down the center of the bowling alley. You put that in dogs with clogged arteries, and it cleaned them out like that. [snaps fingers] It was really easy to see that it was going to work. It was like Drano. [laughter] We had a package when we sold the deal, where we had a picture of the dog before and after the tPA therapy, you could see in just an hour that the arteries were cleaned up. That was one we were sure we wanted to keep. There was nobody who had any thrombolytic therapy at the time. There was streptokinase which was making a little bit of noise, but tPA ended up coming out as the superior product there. Those were the two products that got us into the FIPCO strategy-- growth hormone and tPA, which was the first big product to be marketed in 1986. The unfortunate thing there was that people thought it would be a billion dollar plus product and it never got to more than \$300 million or so. [tape interruption]

Blockbuster Drug vs. Broad Technological Platform

Bugos: In conjunction with the FIPCO idea-- Genentech had a broad technological platform, so broad that you later needed to develop your joint venture strategy. A lot of biotech companies today pronounce that they have a broad technological platform even if they are pushing one product. So your FIPCO strategy was built on this idea that you can have one blockbuster product, at least big enough to justify the formation of the marketing force, but at the same time you have this broad technological platform from which you can develop many products. Did you see those two as inconsistent?

Middleton: They are both realities. What the broad platform allowed you to do was to outlicense a lot of stuff. The way that Genentech functioned, from a revenue perspective, from 1979 to 1986 when it started to generate enough product revenues to make a profit, was--there was a lot of stuff, a lot of creative minds. You can use recombinant DNA for industrial applications. You can use it to make enzymes, so we did the Corning deal (Genencor). We did deals on albumin and all sorts of other products that weren't central to our strategy.

We had our core five product programs. We tried to keep the five best ones. We would look at all aspects of them. Does it make sense to get into manufacturing and marketing them? When the pricing came out on tPA, it was premium pricing, over two thousand

dollars a dose, which was a huge price. Insulin wouldn't have been a good product at ten or twelve dollars a dose. So we had a very broad product platform, but that was used to generate the corporate deals which then funded the clinical trials and other programs for Genentech's own products.

The industrial stuff all got licensed away, and eventually spun off. We used to have an agricultural division which actually reported to me for a short period of time. That all got sold to Ciba-Geigy for \$45 to \$50 million, so we could do something else with that money. Even in pharmaceuticals, we got rid of some pharmaceuticals. The neurosciences they got out of because it's not central to their focus anymore. They got out of gamma interferon because it was for an infectious disease, and they're not in the infectious disease business. They're focused more now on cardiology, endocrinology, cancer. So biotech companies today do focus more. Genentech's technology truly was one of the broadest technologies I've ever seen. And there were other people who were chipping away at parts of it as well.

When Cetus went public--with a lot of hubris--they tried to make the pitch that they're going to be the industrial biotech company because that's a much bigger market than pharmaceuticals. Pharmaceuticals was maybe a three-billion-dollar-a-year market, but the industrial market for this stuff was maybe forty billion a year. "So we're going to end up being ten times bigger than Genentech." They actually said that on their roadshow. It's a bunch of hooley. But there were people pursuing different aspects of the technology.

Bugos: Brian Sheehan and Bob Byrnes were also on board when you developed the FIPCO strategy. Did having good people like that on board lead Genentech to do the FIPCO strategy or did Bob simply have this idea that to pursue a FIPCO strategy we needed to find people like these?

Middleton: I'd say it evolved. We didn't know what all the products were when we started out. When I started there there were only two products being worked on--insulin and growth hormone.

Bugos: Not interferon?

Middleton: We were initially late on the interferons. Biogen had a start on interferons, and beat us to the punch, but Genentech had a strong program. Turned out there were multiple interferons. People didn't know that at the time. Turned out we discovered all these different kinds of interferons. [David V.] Dave Goeddel was so focused on those. He discovered all these subsets of interferon: "Well, this is an antiviral, and this is an antiviral, but it can't be the right one because the sequence doesn't match what's published. So he kept going on it and in reality he discovered all these new classes of compounds, which ended up being Genentech's play in the sector--did a deal with Roche in 1980.

It was a strategy to take these low hanging fruit and sell them off so that you can keep the gems that we had a chance to develop on our own. We missed a couple. We missed Epo[gen]. We could have had that one. It was on our screen. I forget the reason it was overlooked. There was some researcher making the rounds with it. George Rathmann picked him up, got the patent filed, and figured that one out. Nobody thought that artificial red blood cells would be that big a market. He figured it out a lot better than we did. Nobody at the time thought that Epo would be bigger than tPA, for example. It was way bigger than tPA. But at the time, "Something that cures heart attacks, boy!" Epo's something that's very broad,

and it's chronic. You only take tPA once, or twice, but you don't take it all the time. So it's the difference between chronic and acute therapy. If you took tPA once a month it'd be a two billion dollars a year product. (laughs) But of course you don't do that.

Bugos: Why don't we end here for today?

Middleton: OK.

Genentech IPO

[Interview 2: August 22, 2001] ##

Bugos: I'd ask today if we can focus on two main topics, the history leading up to the Genentech IPO and as much detail as we can cover on the research and development limited partnerships. The usual elements of the IPO story that I've discovered are: the recapitalization, which meant that everyone was going at the IPO with common stock; the development of the Series B restricted shares for consultants and employees; what it took to write the risk factors into the prospectus since this was an entirely new and unknown industry; the alleged violations of the quiet period; the road shows; and how you decided upon the share price. Could you touch upon those things as you convey the story?

Middleton: There's a lot of topics there. A fascinating few years of history. Last time we talked about the private equity financing of the company, which was the Series A preferred stock rounds. The financings with Kleiner Perkins, Mayfield, Wilmington Securities, Inco, and then with Lubrizol. The Lubrizol deal was done in June of 1979. By 1979 the company had signed several important contracts--one with Eli Lilly for the development of human insulin, one with Hoffmann-La Roche in '79 or '80 for the development of alpha and beta interferon, and one with Kabi for the development of human growth hormone.

Buzz about Biotech

Middleton: There was starting to be quite a bit of buzz about genetic engineering and interest in a technology that would allow you to use genes to make commercially useful products--that might lead to whole new classes of drugs, whole new classes of natural compounds, foods, industrial products, and so forth. It was a little like the early days of the Internet. Programming life forms and using the machinery of life to produce chemicals that were very complex, but found in nature, seemed to offer boundless horizons to the pharmaceutical and agricultural industries. There was a fair number of articles that were published in *Science*, both technical articles and review articles, and in the public press, in the *New York Times*, *Chemical and Engineering News*.

The very first conference was held on biotechnology around September or October of 1979. It was put on by E.F. Hutton in New York. This is where the phrase biotechnology

was actually coined by E.F. Hutton's analyst, Nelson Schneider. Prior to that it was known as gene-splicing or genetic engineering. Biotechnology became the vernacular. The industry in 1979 consisted of only four companies who were invited: Genentech, Biogen, Cetus, and Genex. Genex was working on industrial products and failed pretty early on. Biogen and Cetus and Genentech became the early stories of the industry.

Late in 1979, Tom Perkins pushed the idea of a public offering. Although the technology was young, and we were early on in the development of products, there was enough interest in the public to get a public offering done. This was a foreign concept at the time. While we had a couple million dollars in revenue--I think it was \$3.5 million in revenues in 1979--there were no product revenues or profits generated from products. Whether or not you could take a company public that didn't have product revenue, didn't have commercialized products, and didn't have significant profits, was an unknown. In the mid to late seventies, if companies went public, they had revenues and earnings. You'd have at least \$10 million in revenues and at least a million dollars in profit, then maybe you could have one of the small high-tech underwriters take you public.

At the time the only real high-tech underwriters in San Francisco were Hambrecht & Quist--Hambrecht & Quist was actually an investor in Genentech but a very small firm at the time--and the old Robertson, Colman, Siebel, and Weisel, the predecessor to Robertson Stephens and Montgomery Securities. Tom Perkins had a close relationship with [William R.] Bill Hambrecht and George Quist, who was alive at the time. They talked about moving ahead with an IPO. Perkins had an interest in liquidity. His early fund was finished at that point. It was out of money, and he wanted to raise another fund--Kleiner Perkins II, maybe Kleiner Perkins Caufield & Byers I. As I mentioned last time, Kleiner Perkins had two major successful deals out of their first fund--Tandem Computers and Genentech.

Tandem Computers as a Model

Middleton: Tandem Computers went public in 1979, about a year before we did. Jimmy Treybig and Jack Lousaunou, the founders of Tandem, used to work in a similar capacity with Kleiner Perkins as had Bob Swanson. Sort of an employee, limited partner. They worked on a deal, spun it off, and ran it. With Gene Kleiner and Tom Perkins's introduction, Bob Swanson and I went down to visit with Jimmy Treybig, who was the CEO, and Jack Lousaunou, who was the CFO. Jack was a very colorful guy. Retired soon after that, became a piano player, had a wonderful apartment in Paris. Their IPO had been successful, raised a fair amount of money, and it had been a large holding for Kleiner Perkins. They were looking to doing something similar with Genentech. But there was still an unknown about the kind of business we were. Tandem Computers was a fault-tolerant computer system that actually generated revenues and earnings--a reasonably conventional high-tech company. It was taken public by C.E. Unterberg, Towbin, so [Thomas I.] Tommy Unterberg was one of the parties that got introduced to us.

Picking Hambrecht & Quist

Middleton: In late '79, early '80, Perkins brought down several bankers. Tommy Unterberg of Unterberg, Towbin came down, started to pitch us on how we would create a story to take Genentech public. Bob didn't really take to him. He thought they were a little bit promotionally oriented. Bob was a pretty conservative guy. We were all interested in creating a company for the long term, not just to make a quick buck in the stock market. Bill Hambrecht came down. Bob actually knew Bill Hambrecht, but Tom and Bill were more contemporaries. Bill is a very likable guy and had a good balance of intellect, perspective, objectivity, creativity. He seemed like a natural to work with. He really didn't have a clue as to what gene-splicing was all about, and he'd be the first to tell you that. He even said at one point, Hambrecht & Quist will invest fifty thousand dollars even in something it doesn't understand-- [laughter]--referring to Genentech.

We took him on a tour of the newly opened facility at 460 Point San Bruno Boulevard. We had a very colorful fermenter that was acquired from one of the pharmaceutical companies back east, with all these different colored valves and pipes and dials. And then we had several wet labs where people were doing gene-splicing experiments with centrifuges and cooling and warming rooms. So Bill politely went around, saw the tour. Tom Perkins asked him, "So Bill, what do you think of this operation?" Bill sort of looked around the room for a moment, perplexed, not knowing what to say. Then he said, "Well, it looks like \$100 million to me!" [laughter] [in terms of valuation] Everybody broke up laughing because that was all he had to say to get the deal for Hambrecht & Quist.

So Bob and I, with agreement from Tom and Herb, felt that Hambrecht & Quist would be a great firm to work with for an IPO. Then we were interested in finding a big name firm on Wall Street. We went around talking to firms, a number of whom I knew from my previous jobs. We ended up selecting Blyth Eastman Paine Webber. Blyth had a tradition, in California, as a big corporate firm. Gene Kleiner made that introduction to Bud Coyle, whom he knew. Bud Coyle had worked on the seed financing for Fairchild Semiconductor. Kleiner was the V.P. of manufacturing at Fairchild. Another interesting tidbit is that Arthur Rock (the famous venture capitalist who financed Intel and Apple Computer) used to work for Bud Coyle as an associate and did the actual phone calls which got Fairchild and later Intel financed. He became the richest individual shareholder in Intel. So we started talking with firms.

Swanson's Hesitance

Middleton: Bob had trouble getting comfortable with the idea of doing an IPO. Early on in 1980 the company had a board meeting. Tom was pushing hard for an IPO: "I want you to know that the timing is perfect. All the planets are lined up. Are we ready to go on this?" Bob said, "I've thought a lot about this decision to go ahead with an IPO. I think we'll be ready in about a year, ready to begin working on our IPO." Tom had a fit. He thought he had it all positioned, and ready to go. Bob was thinking a year out into the future; Tom was clearly thinking next month. I remember he took a pencil and threw it down on the table and said

"That's the most ridiculous thing I ever heard. Why don't I just sell all my stock and resign from the board. I think we ought to put this to a vote right now." It was Tom and Herb and Bob in the room-- a three-man board. I was attending as secretary. Tom asked Herb Boyer: "Herb, how are you going to vote on this IPO thing?" Herb didn't quite know what to say, then said, "Well, I always vote with my friends." [laughter] That kind of broke the ice and everyone started laughing. It was a very political thing to say. They had an animated discussion. Eventually, Bob came around to the idea of pursuing the IPO.

Attempting a Sale to Big Pharma

Middleton: Two other important events led up to the IPO. With the investors looking for liquidity, Tom Perkins was pushing the notion of selling the company to big pharma--who really had the resources, had the people, had the development capability to take this exciting technology and commercialize it. With a little firm like Genentech--with fairly novice management who had never developed a pharmaceutical product before, without the big money you would need to do a clinical and development program--maybe the way to go was to sell the company. So we met with Johnson & Johnson, who sent out their president. It was a very friendly meeting. We floated the trial balloon that for around 80 million dollars we could have a discussion. They essentially didn't respond because I don't think they had a clue as to what to do with this technology--certainly didn't know what it was worth. They couldn't fit it into a Band-Aid mold.

Bugos: Did you give them the 80 million dollar figure?

Middleton: Yes. We threw it out, but they never responded. We had a subsequent meeting with Eli Lilly who was the licensee on the insulin. Again, Perkins chaired the meeting. This was in Indianapolis. [Richard D.] Dick Wood was the CEO, the mystical head of Lilly, and a conservative, high-brow guy. I presented and the other management folks presented to the Lilly managers--Gene Step, Neil Pettinga, Dick Wood. We floated a 100 million dollar figure there. We figured insulin was a go. Lilly had those royalty and contractual obligations, they could buy their way out of that. Plus they would get all these other products--growth hormone, interferon, a number of other things. They didn't move ahead either, though we had several discussions with their business development people after that meeting. I think it was one of the worse decisions they ever made. They paid out hundreds of millions of dollars in royalties to Genentech only on insulin alone. But their mentality was "Not Invented Here." If we were to take a hundred million dollars and put it into our own research labs at Lilly we could get a much better return on product development than spending it to buy this new technology. Plus, we can go out and license this technology from a bunch of other companies. So, that deal didn't fly.

Big pharma just wasn't going to be able to get their arms around this--partly as a result of the not-invented-here factor, partly that it was too new and too different to be able to value. It became clear that if we were going to create some liquidity for our investors and raise some money that the public offering really was the best route. We reached that conclusion by May or June of 1980.

Drafting the Prospectus

Middleton: We started drafting a prospectus, around June of 1980. It was filed in [looks at S-1 on his desk] August, September. The objective was to raise \$20 to \$30 million for development. We didn't know all of the things we would be spending it on. We selected Hambrecht & Quist and Bud Coyle at Paine Webber--Blyth Eastman Dillon merged with Paine Webber after our deal. Bud came out of retirement, schmoozed us all really well. He was a delightful man, hadn't done a deal in a while. The thinking was to file a prospectus and see if investors have enough interest to put in the money. We ought to be able to achieve a valuation north of a hundred million. That was better than any buyout offer we didn't get. The banker thought we could do that and sell 20 to 30 million dollars worth of stock.

The other thing Perkins pushed hard on--and let me add that he was definitely right on--was that being first mover would have a significant advantage. Being the first company to come out in a new hot area would really excite investors. He thought it was important to come out ahead of Cetus, ahead of Biogen, ahead of Genex. All those firms did go public after our deal. We filed, in July or August, and it did create a lot of interest. Here was this new technology, here was this new company. There were pictures in the prospectus that showed genetically engineered products in a bottle. No one had even imagined that. A lot of people were skeptical, doubted that it was even real: "It's probably just talcum powder that they put in a bottle." Well, the lawyers and the SEC don't let you do stuff like that, but that's what a lot of people thought. We showed people photographs of microbes swelling up with manufactured protein. Some were skeptical that it was real. But many more were truly amazed.

Examiner Interview and SEC Response

Middleton: The media picked this up and developed it into a frenzy. I did the interview for the *Examiner*. I must say no one properly tutored me in the behavior of the quiet period. My understanding was that you were allowed to talk to the media so long as your comments were limited to anything that was in the prospectus. Since I had written the prospectus, I knew what was in the prospectus. So I answered questions. They wanted to come down and take some pictures of the company, so we let them do that. We had several good pieces of media in the past. What I hadn't realized is that they went back into the archives and pulled out stuff on the company that was previously in the media, but was not in the prospectus, such as a quote by Bob Swanson that in five years we'll be a hundred million dollar company and profitable. There were some financial goals. Those goals and some previous facts and figures were picked up and attributed to Bob as though he was making those statements in the current time. When this article came out we were dumbfounded with all of the stuff that they had put into it that went way beyond just answering questions about the prospectus.

That's what got us into hot water with the SEC--the so-called gun-jumping claim. Some of our friendly competitors sent this information along to the SEC. Because of all the stories

in the media, the SEC thought we were out there actively hyping the deal. Other than this one interview, we hadn't talked to the media at all. The only reason we talked to them then was because it was in response to our filing. We put out a press release that we were filing an S-1 and this was in response to that press release. In retrospect we shouldn't have said anything. The SEC sent us a letter saying they were going to refer these activities to the enforcement division: "We're going to put your filing into hiatus for a couple of weeks to see how things develop." That was pretty ominous. Maybe the deal just got killed. Maybe I'll be out of a job in two weeks. I was the obvious fall guy if things had gone wrong, because it was my picture and my interview in the paper.

We had hired Lee Benton and Bruce Mann, who also represented Kleiner Perkins and who had good contacts at the SEC. We went back to talk to them. Several memos were prepared about all of the contact we had had with the media. About the naiveté of management-- We had behaved appropriately, with one exception. We hadn't been guilty of trying to hype and promote the deal. Ultimately, the SEC relented and let us go ahead with our roadshow. They were going to take up our filing for active review; they weren't going to put it on ice anymore.

Roadshow Honeymoon

Middleton: So we did the roadshow in September of 1980. The response was overwhelming everywhere. People just listened and gaped. Herb got up and told a joke and did his tricks with the pop beads showing how recombinant DNA works. I don't know if that little toy is around somewhere. Basically, we had a little clear plastic box with pop beads in it--the baby toys that popped together. It was supposed to represent a bacterium. He took out the beads and showed how you spliced genes together. A very simplistic little model. The fact that a UCSF professor was up there explaining it had everyone mesmerized. I gave the talk on the financial side, Bob gave the talk on the strategy, Herb gave the talk on the technology. It was pretty elementary. Every time we asked for questions there weren't any. People didn't know what to ask. There were no experts, there were no analysts. Everybody was just amazed.

The other point that was interesting was that Bob Swanson got married in early September--September third or fourth. He ended up taking his wife (Judy) on the roadshow. He went over a couple days early and she sort of rode around with us. It was a combination roadshow/honeymoon.

Pricing the Shares

Middleton: The filing range on the prospectus-- Initially, we were looking at twenty dollars a share. Because of the extreme interest, the bankers said we could probably name our price. But we don't want to be too greedy. We want to do what's fair, we want to do what's right. So we put a wide filing range of twenty-five to thirty dollars a share in the prospectus. Sold a

million shares to raise our 25 to 30 million bucks. Sounds great. In 1980 that was a lot of money. It's worth about five times that today.

Then we had the pricing committee set up, which was Bob and Tom, and one of the other directors, Don Murfin. I participated in it. One of the bankers, John Dakin, who was the partner and head of the syndicate department at Hambrecht & Quist, said "We've never seen interest like this before."

##

Middleton: He said "We don't even take calls anymore about Genentech. We know that if we answer the phone, or call them back and start talking about the Genentech deal, they're only going to be disappointed. They're only going to be mad at you for not getting shares or more shares. So we're not even calling them back anymore."

So how do you price this deal? Bill said we could price it at whatever we want. People will buy it. It's an incredible statement. We were advised by counsel that we shouldn't go more than five dollars outside of the range without having to refile. It's a regulatory consideration. One of the things we could have done, which we didn't think to do at the time, was to sell more shares. So we priced the deal at \$35. It opened the next day at \$82, went to \$89, closed at about \$71.50 the first day. That was the "Genentech Jolts Wall Street" story. [points to a framed copy of the *San Francisco Chronicle* with that banner headline]. It was the hottest deal in ten or fifteen years and held the record for the hottest deal for quite a while.

I always like to tell people we raised \$35 million in capital and \$35 million in goodwill. (laughter) Even to this day, everybody who got some shares on the Genentech offering will tell you about it. I used to run into people who would say, "My broker gave me fifty shares of Genentech on the offering. He sold it right away and made me a thousand bucks. That was such a great experience. I'm finally glad to have a chance to meet you guys." So I think we really did raise \$35 million in goodwill. It would have been nice to get that \$35 million in the company, but we did eventually. Briefly, that's the story of the IPO.

Bugos: OK. On the stock price issue. After that the stock settled for a year around that IPO price, which made everyone think you were actually precise in figuring out how to value it.

Middleton: Yes. What happened was it went up to about seventy-one and then it slowly settled down. It came down into the fifties, forties, then stayed in the high thirties. The bankers told us you'd like to see the price go to a 15 to 20 percent premium. Then after the offering, everyone would be happy. Your investors would be happy, your company would be happy, and you create a positive environment for trading in the stock.

Fluor Corporation and Trading Volatility

Middleton: Genentech stock was highly volatile because there weren't that many shares outstanding. We were subject to a lockup, a ninety-day lock, meaning the insiders couldn't sell. Then

there was a lot of skepticism about people dumping shares--people like Boyer, Swanson, Lubrizol, and Kleiner Perkins. With Kleiner Perkins, people understood that they were a venture fund and they were going to distribute their stock. But investors were a little worried that there were only a million shares out there trading and another five million shares that could be dumped on the market by people who didn't have any money. It didn't matter to them if they sold it at forty or twenty--they'd still sell it to create a little cash for themselves.

One of the ways we dealt with that-- We had a corporate investor, Fluor Corporation. They had actually offered to buy the whole public offering. They were interested in the plants that would be built to make genetically engineered products. They had identified our sector as a strategically important future area for engineering and construction. Anyway, they couldn't participate in the offering, but we told them after the offering that they could probably buy stock from the holders before it was put onto the market. They offered to buy up to 15 million dollars worth of stock at forty dollars a share. That was a little over the market price. Actually, they made that offer when the stock was at trading at forty-four, forty-five. And we said "Why would we sell it to you at forty when it's at forty-four in the market?" They said "It's not going to be at forty for long if you start selling it. So forty is our price. Take it or leave it." We decided it's worth doing something here.

We went around to everybody in management, including Boyer and Swanson and some of our institutional investors. Lubrizol didn't want to sell any of their stock. Management didn't sell a lot. Some people sold maybe 10 percent of their position. We were able to shake loose all of the shares that were likely to be shaken loose and sell them to Fluor. When we announced that deal the stock initially went to forty, but then it went back up when people realized there wasn't going to be a big overhang of shares dumped onto the market, because these guys at Fluor have bought them up. So that was a good way of dealing with the aftermarket.

Underestimating Manufacturing Costs

Middleton: The other thing we realized soon after the public offering was that with the green shoe [the 1 percent oversubscription], we had raised about 38.5 million dollars. That seemed like a lot of money, but we were just completing our feasibility study on the first plant that we would be building to manufacture products--a place for growth hormone and tPA, and we were thinking gamma interferon because we had a supply contract with Roche. Fluor was helping us with this project, and we had hired [William D.] Bill Young from Eli Lilly. He had been in charge of their plant development program for human insulin. The Lilly people were mad as hell that we hired him, and they wouldn't let us near their place after that. He was doing a study that showed just to build the basic infrastructure for this plant it was going to cost somewhere between \$35 and \$40 million. That's without all the equipment in it. In one shot, we had a use of proceeds for a hundred percent of the all the money we had just raised.

Private Placements

Middleton: We realized we'd need a lot more money than we had just raised. That's when we went on to do several other deals. We did a 20 million dollar joint venture deal with Corning Glass. We did a joint venture called Genencor. Then Corning, to cement that deal, which they were very interested in, gave us \$20 million for an equity investment.

Bugos: Which went directly into Genentech?

Middleton: Which went into Genentech, right. We also did a private placement with a group of Swedish institutions, where we raised another \$20 million. And with a group of Japanese institutions, we raised another eight. This was all after the IPO, between 1980 and 1982. The market was not really great then. It was not strong enough for us to be doing a follow on, so we did these private placements. That was a little nerve-wracking. Here you had the hottest deal in history, and a year later the bankers thought the timing wasn't right to go back and raise more money in the public market.

Bugos: Did you actually do the Japanese placement at a down financing? I calculate that at thirty-one dollars a share whereas the Swedish and Corning placements were at thirty-five.

Middleton: Yes. It was down a little bit, but it was restricted stock. We insisted with Corning that thirty-five was a minimum. With the Japanese deal, we ended up having to price it on the average trading market. They couldn't figure out any other way of doing it, but they were locked up for a year or two, and they got 144 stock. We didn't like the pricing formula, but we figured having the relationships with the Japanese investors in the long run was more important, because it was a big market for biotech. In fact, the company did several hundred dollars worth of deals in Japan. So it was a good decision, but it was kind of a down round. At the time, people didn't really know what the Japanese investors paid. It wasn't disclosed. The formula was disclosed but the price wasn't. So nobody knew that we sold the stock for less than thirty-five.

Bugos: And these were all equity deals. You didn't consider debt or convertible shares?

Middleton: No. It was too early for that. They were all straight equity deals, straight common stock. Bob liked to do plain vanilla deals. They weren't preferred stock deals, they weren't convertible debt deals.

Premium Market Capitalization

Bugos: Just dilution that you had to worry about?

Middleton: Yes, just dilution. While we were doing these equity deals we were also doing some very large corporate deals. The Roche deal in 1980 had quite a few significant milestone payments for the alpha and beta interferon project. We did a deal with Mitsubishi for something like 50 million dollars. There were deals with Daiichi Seiyaku and Kyowa Hakko.

We'd sell the product three times. We'd sell it in Europe, we'd sell it in the US, and we'd sell it in Japan. We could sell it for about three times what it cost to develop, just because people were interested in getting access to it. The company was actually profitable, based on these corporate deals, from 1980 until about 1986. This was quite an accomplishment because we were the only company that was profitable, by far. This helped create a real premium price for Genentech in the market. We were marginally profitable, but our market cap was between five and ten times our nearest competitors' market cap. And we were able to maintain that market cap that whole time. We were viewed as a much higher quality company because we were able to manage an income statement and a balance sheet. People weren't concerned about us taking a lot of stock dilution, because we were very careful in the stock deals we did. The company didn't do a single follow-on offering until '84 or '85, quite a while after the IPO. I wasn't there anymore. It was because of the R&D partnerships.

Down Market for Biotech: Cetus and Biogen

Bugos: Before we start that--one reason the biotech market was down in the year following your IPO was because other companies, particularly Cetus, had spectacular offerings. Spectacular mostly because they came after you. Cetus and Biogen were not as well managed and there was some concern that they might not last. Was that part of Perkins's thinking in wanting you to get to market first?

Middleton: Yes, I think it was. And you're basically correct. It sort of backfired in that regard. Our deal was so hot, so successful, and in such short supply. It created a huge afterdraft, an opportunity to take other companies out.

Cetus came along, with Unterberg, Towbin as the underwriter. Tommy Unterberg was really pissed that he missed the opportunity to take Genentech public, so he started working right away on the Cetus deal. I guess [Michael S.] Ostrach in *The Partners* talks about Genentech, though he was at Cetus subsequently. Cetus had put together a litany of arguments, one of which was that they were interested in industrial biotech: "The industrial market is a 30 billion dollar market, the pharmaceutical market is only a 3 billion dollar market, so Cetus offers ten times the opportunities to investors that Genentech offers." Plus, "We got more people, we got more Ph.D.s, we'd been around longer, we got more Nobel laureates on our board." The reality is that their technology was not anywhere near as advanced. Their staff wasn't in the mainstream of what biotech was working towards. But investors couldn't figure this out. So Cetus went out and raised over 100 million dollars based on this pitch--sold five million shares rather than a million, at about twelve bucks. It gave them a huge war chest. They had another \$20, \$30 million in the bank as a result of some deals they had done with big oil companies. So overnight they had \$140 million in the bank. We had \$50, \$60 million in the bank. They were a threat. But investors didn't make money on that IPO. They were under water almost immediately, and I don't know if investors ever made money on the Cetus IPO.

Cetus had creamed the market in terms of absorbing all the available capital. Then Biogen went out. They had a reasonably good technical story. They had a couple of good managers

they had brought in, plus Wally [Walter] Gilbert. They managed to get their deal done. Their deal was not a real hot deal. I think they raised \$30 or \$40 million. They were probably the worst managed of the companies, because they had huge losses and an unmanageable corporate structure. But they had good technology.

The Cetus management was guilty mostly of overpromotion. They were promising what the market wanted, without really having the goods. Subsequently, management there was fired. This did create disappointment that made it hard for biotech companies. That was one of the reasons why we had to go and do these private placements and corporate deals.

We had less cash in the bank, but we were doing more corporate deals at a better rate, getting good values for the sale and licensing of our technology. And remaining profitable every quarter, doing a good job on investor relations, and we were doing a good job explaining our story. "Measure us on these benchmarks. Come back at the end of the year. This is what we got done against those benchmarks. These are our benchmarks for next year." Then we started to create a track record that people could follow. They couldn't really follow our revenues and earnings, because they weren't completely related to our product progress. They were related to deals. But investors started to think that this is an interesting pipeline. Any one of these things hits and this is going to be a hugely successful investment. From about 1980 to 1985, Genentech developed a really good shareholder base of institutional support with a premium value. Everyone who had bought stock in all these deals, whether they were the private placements or the public offerings, had a pretty good gain. Everybody was convinced they could make a pretty good return in the future as well. People were saying there was Genentech and everybody else, in terms of market value. That changed when tPA turned out to be a smaller product than was hoped, and when Amgen succeeded with erythropoietin and G-CSF, which were both billion dollar products. Just based on pure revenues and earnings Amgen became the most valuable biotech company.

Biotech Analysts

Bugos: Were there analysts working in that early period in biotech whose judgments would stand the test of time, who were writing good reports, understanding the bigger story?

Middleton: The very first Genentech analyst was David MacCallum. One of the reasons for selecting an investment banker is to have a good analyst. Dave MacCallum was the pharmaceutical analyst at Blyth Eastman Dillon, I think from Mitchell Hutchins. He's still on Wall Street today; he's a veteran. He's been head of health care banking at H&Q, UBS Warburg, and Salomon Smith Barney. After his first visit to Genentech in 1980, he got it. He said "This is really interesting. If you're able to make pharmaceutical products with this technology, you can create a company worth several billions dollars. I see how you can do it." He was able to look out five or ten years and see a scenario that made sense to him. We had an immediate rapport with him.

The analyst at Hambrecht & Quist was Annette Campbell-White, who was a newly hired analyst. She's a venture capitalist today. She has her own firm called MedVenture Associates. We still co-invest with her. A brilliant lady. A strong-willed lady. She didn't

always hit it off with Bob, but she and I got along great. She asked tough questions; Bob didn't take too kindly to people asking tough questions. He liked people who would hear it the way he wanted to tell it. But she did a nice job as well. Those were really the first two biotech analysts. David MacCallum's reports have definitely held the test of time.

Government Regulation

Bugos: Let me ask another broad contextual question that gets back to how you wrote the S-1, and specifically the risk factors in there. More specifically, government regulation. At this point, from the academic scientist perspective, there was a lot of debate over whether biotechnology should be owned by private corporations at all, but the finance people don't seem at all to be affected by that more theoretical debate. *Diamond v. Chakrabarty* was allowed just prior to your IPO, so how important were patents? And finally, the fear of genetic engineering. I assume part of the reason you needed to spend so much, unexpectedly, on your facility was because class III containment was still required. So what's the story about government regulation and whether you'd be able to pursue your business plan?

Middleton: A lot of those things were uncertainties. The *Chakrabarty* decision demonstrated that you could get patents on novel life forms, and predated the IPO. We had enough evidence for people to believe that we could get proprietary rights to technology. Actually getting the patents, and the extent of those patents was still a risk factor.

The academic controversy was largely ending. The recombinant DNA controversy goes back to the early seventies--whether you should do genetic engineering at all, whether bringing new life forms into existence was a good idea. It's similar to the stem cell controversy today. In my view, you weren't really creating new life forms, you were creating modified life forms that were much weaker, but could make the products you wanted to make. It was microbe slave labor, that's how I would describe it. (laughter) You let them out of a fermenter and they die. They're spending most of their energy doing something which is non-productive for the microbe itself.

Bugos: Boyer was focused on quasi-synthetic DNA--part natural recombinant, part synthesized DNA. Did that help you avoid that whole controversy?

Middleton: Yes, it did. There was a recombinant DNA advisory committee and an NIH committee. The furor was settling out. They could have passed laws to prohibit work in this area, and that was the big concern--that they would. They didn't. Boyer and Swanson spent some time as lobbyists trying to convince politicians to do the right thing. They got an audience with [Senator] Edward Kennedy and a few others. They headed off legislation to outlaw the technology. That would have stopped Genentech in its tracks. That risk was gone by 1977 or so. It was no longer a real political risk after that. There was still the perceived regulation by the NIH, which you can read about in the risk factors which I just pulled up here. [looks at the 1980 S-1] It had to be done in the right ways. You had an NIH ethical, scientific review.

FDA Regulation

Middleton: Then, of course, the FDA process had to do with the regulation of drugs; how you make them, are they safe, and do they work. There was a very big regulatory risk--whether a small company could have successfully dealt with all these things to get a product approved. It turned out to be a bigger risk factor than management thought it would be at the time. Genentech had a fair amount of trouble with the FDA in its early days. With growth hormone, the trials went on a year longer than what we had originally hoped they would. The reviewer there was very tough and there was a lot of argument back and forth with Swanson and our regulatory people.

With tPA, the same thing. At the advisory committee meeting there was some internal political haggling over whether it was a biologic or a new drug. We had done this great clinical trial which showed that it dissolved clots, then the panel and the FDA debated whether dissolving clots was a basis for therapeutic approval. Maybe it should be a decrease in mortality; that's the real goal if you're treating heart attack victims. It's not whether you're dissolving clots and restoring blood flow but: "Are you increasing their life span?" It's a totally different clinical trial than what we had done. Most people thought, including the clinical manager, that if you can open up an artery that's blocked in the middle of a heart attack that it would essentially bring a person back to life. He can get up and go home. That is an indication of a successful drug. But the expert, outside advisors to the FDA advisory board didn't agree with that. We almost got into a shouting match over this. The company got shot down. It took another twelve to eighteen months of politicking at the FDA--backroom discussion--to work this all out. The company's approval was delayed about a year.

The risk factors associated with regulation were quite serious and continue to be. It was particularly difficult because we were the first ones through, and we didn't have any experience in working with the FDA. And the FDA didn't have much experience in reviewing recombinant drugs.

Bugos: You were doing all your initial new drug applications yourself?

Middleton: Well, we had consultants, but there weren't CROs like there are today--clinical research organizations. We were just naive. The big drug companies had close relationships with the reviewers, they go to meetings, talk to them continuously, take them out to lunch. They know how they think. We were showing up in Washington, for the first time, with the guidebook, learning how to fill out the forms. People in Washington, being bureaucratic, being skeptical of this small company from California--took a very tough and somewhat adversarial position with us. Their attitude probably was "We're going to show these kids a thing or two about what you have to know to get a drug approved in this country." [laughter] All that's changed in the succeeding years. The FDA works pretty well with small companies today.

##

Middleton: The other risk factors that were important here was the amount of capital the company would need, that it would take a while for the company to achieve profitability. The capital requirements to support R&D and get into manufacturing might be beyond the ability of the company to finance. Those did turn out to be significant items--the host of financing vehicles that needed to be created to provide that capital, until the acquisition, or investment, by Hoffmann-La Roche in Genentech, which brought close to a billion dollars into the company. The Genentech deal with Roche was the last deal it ever had to do to raise money. It never had to raise money again after that, did not have to subject itself to the fundraising vagaries of the public markets. That was ten years after the IPO. But while I was there, as CFO, I worked on a lot of different approaches to raising money. That leads us into the R&D partnerships.

R&D Limited Partnerships

The Need for Clinical Trials

Bugos: Yes. Why don't you tell us about how the clinical partnerships were conceived, the laws that preceded it, how they came and went.

Middleton: I described earlier the IPO, and the several private placements we did with large corporate investors in the US and internationally. There was still a big need to fund clinical trials. In order to be a successful FIPCO--fully integrated pharmaceutical company--you have to be able to pay for and manage clinical trials. This was clearly something that was the purview of big pharma, like Eli Lilly, Hoffmann-La Roche, Schering-Plough, Pfizer, Merck. Syntex was maybe the last new pharmaceutical company that was started, and that was successful, based on birth control drugs. You had to have the people to manage the clinical trials, but you also had to have the money. The big companies were not going to give you the money to do the clinical trials for products that you planned to market yourself. They would only pay for the clinical trials for the products that you had agreed to license to them. The only way to build a company long term is to be able to make and sell your own products. You have to do your own clinical trials to get to that point.

Genentech had three or four new products. It was working on growth hormone, interferon, tPA, and several other molecules. Those clinical programs were estimated to cost as much as 150 to 200 million dollars. That was a massive amount of money compared with even the \$35 million that we raised in the IPO. We had product deals on these compounds with different companies, primarily for international rights. But in the US market we would have to run our own clinical trials.

The idea of the R&D clinical partnerships was born. The first R&D partnerships were done on technology-based companies--in semiconductors. The IRS had determined that under the tax code, and there were several court cases on this, that if an investor entered into a partnership that spent money on R&D, then the tax deductions associated with the R&D expenditures could be passed through to investors, so that the investor could take the deduction on his personal income tax form. That was just the way the tax law worked in the seventies.

The notion of the R&D partnership was: get the money in from the investors, spend it on R&D, the investors take the deduction. Then if something came out of the R&D, split the fruits of that harvest between the investors and the company interested in commercializing the product. There were several ways of doing that. One of the ways was for a royalty on the product. For a pharmaceutical product, you could have a 5 or 10 percent royalty. If the product did maybe \$250 million a year, average success, a 10 percent royalty is 25 million dollars a year. Maybe you raised 50 million dollars on that partnership, so you're getting a 50 percent cash flow return per year, for every year that that product is generating a royalty, plus you're getting your original tax deduction. That was the concept.

So I was thinking, there are a lot of people who are interested in this technology, a lot of doctors. Doctors make a good living, they're in a high income tax bracket. When we started, the tax rates were something like 70 percent at the marginal rate, then they went down to 50 percent at the marginal rate. Even at 50 percent, if you can deduct a hundred thousand dollars and save fifty thousand dollars, that's a huge tax savings. Why not sell this to high net worth individuals? Tax shelters were a fairly big business, and you could get the tax shelter benefit and still play on the upside benefit of biotech if the product was successful. Doctors were familiar with--in the example of tPA--cardiologists were familiar with this new product and can make some judgment about whether it's going to work. They talk to their friends. They say this is the best thing we've seen in a long time. Maybe they'll buy it up. We put pretty detailed projections in this document, and maybe they'd make a 6, 7 percent royalty for fifteen years.

Getting Investment Banks to Sell R&D Partnerships

Middleton: We took this idea to Blyth Eastman Paine Webber and Hambrecht & Quist. A totally novel concept. They had never marketed one of these before to anyone. Other firms had, these two firms had not. Merrill Lynch had done one with Gene Amdahl. Paine Webber had not done R&D partnerships, but they had sold tax shelters. They had a tax shelter department. The biggest tax shelter investments were real estate, oil and gas, and leveraged leasing. Most of those were tax driven. R&D partnerships were really more investment driven. You look at what you're going to get out of it. The tax benefit is a leverage factor. If you're going to earn a 20 percent tax flow return, then with the tax deduction thrown in, that 20 percent becomes 40 percent because you're only working on half the investment base.

So Paine Webber agreed to take it on, as did Hambrecht & Quist, although they did so very reluctantly. "We've never marketed one of these before, and we don't really know what to do with it." Anyway, Tom Perkins twisted their arm and they came into the deal. Tom, very much to his credit, said for the very first R&D partnership we marketed, "I'm going to buy a million dollars of this for myself because I think it's such a great investment." He stood up and said this in front of a bunch of brokers who were out to visit the company. That really got people excited.

Initially we tried to sell it to institutions. The institutions liked the story, they liked the company, so they went out and bought the stock. [laughter] So the stock, during our roadshow in 1982, went from about thirty-two up to forty-six. "Wow, this is a great story, a great

product. But we can't buy an R&D partnership. That's not the kind of security that we invest in." So they bought the stock. Then people started thinking we ought to have a stock offering, but if we announce that we're going to have a stock offering then the stock will go down again. The deal wasn't selling very well on the basis of a royalty, because it was an unknown vehicle. Then Paine Webber came up with the idea of, "Let's sell this to high net worth individuals, investor by investor." That means you have to go out and meet with them, take a bunch of doctors to dinner, explain why this is a good investment so they can make up their own mind. The whole management team marketed the first R&D partnership, Genentech Clinical Partners I, which was for gamma interferon and human growth hormone.

The other thing we decided to do, to sweeten the deal, was throwing in some warrants on Genentech stock. We debated about whether it should be stock or warrants. I thought that getting the royalties plus the warrants was too rich a deal, because you were assured of getting a ride on both. My argument was to give investors a choice. They could take either the stock or the royalties. These partnerships all had a buyout. The company has an option to buy the technology back. The consideration paid for the buyout is the royalty stream or whatever other consideration is negotiated. So it seemed to me that it was a better deal to offer them one or the other. If the stock price was up by four times they could make four times the money at the time of the buyout in three years--approximately three years; it depends on when the results of the technology were completed. [tape interruption]

Returns to Investors

Middleton: So when the deal didn't initially sell, we put in the stock alternative. In the case of Clinical Partners I, for a fifty thousand dollar unit, you got your choice of either a product royalty for twelve or fifteen years, a 5 to 7 percent royalty on growth hormone and gamma interferon. Or fifteen hundred shares of stock, which was worth about fifty thousand dollars in 1982. And so if the stock went up four to five times, you get a buyout worth two hundred to two hundred and fifty thousand, plus you got the initial write-off of fifty thousand dollars. It turns out that the stock did go up about five times, and Genentech did cash out the R&D partnership for all stock. Actually, it went up a little less than that, and they offered people additional shares if they would cash out so that they could get rid of the royalty obligation. Investors in Clinical Partners I made about five times on their money--for the fifty thousand they put in they got two hundred and fifty thousand in stock. On the basis of a twenty-five thousand after-tax investment, that was a ten times return on their investment. So that turned out to be a great deal for everybody.

Genentech Clinical Partners II was raised a year later, in 1983. We raised 34 million dollars to fund tPA, which was the third product that Genentech took into the clinic on its own. Same deal there. You could take a royalty or, in that case, a thousand shares of stock. Because the stock had gone up in a year, they only had to offer a thousand shares rather than fifteen hundred shares. That thousand shares of stock, by the time this deal was ready to be bought out, was worth about two hundred thousand dollars. So four times the fifty thousand dollar unit, or eight times an after-tax cost of twenty-five thousand dollars. These two partnership deals--which totaled about 90 million dollars of investment--returned an

average of four to five times, 350 to 400 million dollars to investors. Right about the time Genentech was introducing tPA into the market in 1986 or 1987, they bought out the R&D partnership.

Third and Fourth Partnerships

Bugos: How did the third one do?

Middleton: The third one was done just after I left. [laughter] They did two more R&D partnerships. Investors made money on all of them, is my understanding. The third R&D partnership was for tumor necrosis factor [TNF], which was a product for cancer. Very toxic material. The problem was that it was too toxic to give to patients. The company decided to buy back the technology for a nominal amount of money. We had switched over the structure to offer a combination of royalties plus warrants. My understanding is that investors made one-and-a-half times their money by virtue of the fact that the warrants were in the money. Then Genentech bought the technology back. The partnership was about 50 million dollars, and I think Genentech paid them \$15 million, so they got some cash back plus the value of the warrants.

The fourth partnership was on CD4 for the treatment of AIDS. It also didn't have tremendous efficacy. It didn't work as a product. But the investors got their money back by virtue of the stock appreciation, as well as through the warrants. I don't know the exact returns on the last two because I wasn't with the company when those two were done.

Bugos: They were structured the same and their returns were dependent upon the success of the product?

Middleton: In those cases, they got the royalties plus a warrant. In the first two deals you had a choice. You could take the royalties or you could take the stock. In the latter two deals you get the royalty and you got warrants on the shares. There were accounting and tax reasons why it was advantageous to shift to warrants, so it was a different structure.

Bugos: And in terms of returns to the company?

Middleton: Through all those R&D partnerships they raised something like 200 million dollars. It allowed them to fund the clinical trials for five products, three of which were successful commercially. Growth hormone and tPA were the principal source of product sales for the company from 1985 until 1990, which was the time the company got bought--60 percent for \$2.1 billion. Investors tend to value companies in the pharmaceutical industry between six and ten times revenues. So it was a tremendous way to finance products and successfully build a FIPCO.

End of R&D Partnerships

Middleton: The Tax Reform Act eliminated the ability of investors to deduct R&D expenses on their personal returns. So the R&D partnership was killed by Congress in 1986. There was no advantage any longer to forming a partnership to take a tax write-off. As a quid pro quo for the elimination of all those tax shelters, the marginal tax rates went down. There was less desire for people to buy tax shelter investments.

Morgan Stanley Research Venture Partners

Middleton: After leaving Genentech in 1984, I managed an R&D fund for Morgan Stanley, which I raised in 1984--about a 40 million dollar fund. We did ten deals, three of which were pretty successful: IDEC [Pharmaceuticals], Silicon Graphics, and Genetic Systems. Two of those involved funding clinical trials. One involved funding product development of a chip set that was used in Silicon Graphics computers. That was the last institutional fund that was raised. Returns were OK; they weren't fantastic. IDEC and Silicon Graphics were great long-term investments, and Genetic Systems was brought by Bristol Myers at a profit. There really was no advantage to using this structure any longer because the tax advantages were gone. You might as well finance just using straight equity.

Bugos: What was the fund called?

Middleton: It was called Morgan Stanley Research Venture Partners.

Bugos: And Midwest?

Middleton: When I left Morgan Stanley, Midwest was the name for my own venture activities.

Bugos: OK, so when you raised the Morgan Stanley fund, that meant that you sold these partnerships to high net worth individuals?

Middleton: It was a pooled fund. It was the evolution of this concept to a blind pool. There was lots of tax and legal advice that we needed. Rather than taking these deals and selling them to people, we created a pool of capital. We wanted to do \$100 million, but we only got forty. We take the cash and go out and do these R&D funding transactions. They pass through all the R&D expenditures, to investors, who get a market basket of projects. There will be some royalties, there will be some warrants, there will be some buyouts for cash. Sort of like a venture fund.

Genentech Development Corporation

Bugos: OK. Genentech Development Corporation was created to manage the clinical partnerships. I assume these high net worth individuals were limited partners, that they were fairly silent on telling Genentech how to pursue its work.

Middleton: Genentech Development Corporation was the general partner. The structure is laid out here [refers to the prospectus for Genentech Clinical Partners]¹. Basically, Genentech Development Corporation, which I was president of, was a subsidiary of Genentech. It was set up to be the corporate general partner for these entities. Genentech Development Corp. had the responsibility for administering the partnership, but it was basically a holding company. The investors came in as limited partners.

Then there were a series of contracts. The partnership contracted with Genentech research labs to do the research. They would give Genentech the money as it would come in, Genentech would perform the research on a best efforts basis--doing the clinical research, getting the products ready, getting them into the clinic. Then the partnership would own the rights to these products. If Genentech was ready to commercialize, then Genentech had an option to license these technologies from the partnership that paid for them and owned them. Genentech would sell the drugs for maybe a hundred dollars, then pass back eight dollars of that as a royalty to the investors and keep the rest. So Genentech became a FIPCO. They controlled the manufacturing and the marketing and the profits from the drugs. And they just had to pay investors a royalty for the money that they put up.

Risk and Expense of Clinical Trials

Bugos: Why was it for clinical trials? Could Genentech have done the same thing at the more basic end of the research spectrum?

Middleton: The answer is yes. You could have, but the pay-off would have been a lot further into the future. There were some basic research partnerships done, but one of the rules for the tax deduction was that the R&D had to be pursuant to a commercial purpose. If you're just doing research, and there's no product coming out of it, it's a little harder to show that it's pursuant to a commercial purpose. You do the clinical trial, then at the end of the trials you know if you have a commercial product. If you have a commercial product, then you can start paying a consideration. If you're doing basic research, you get into a clinical trial, but you still don't have any revenue that you can compensate investors with. You have to do another two or three years' worth of work. That's why we thought it was ideally suited to a clinical trial.

Bugos: It isolated that particular risk?

Middleton: Right, which is a really big risk. It's a huge risk because when you start a clinical trial you have to finish it. A clinical trial is \$30, \$40 million. You either hit oil or you hit a dry hole. [laughter] You are sharing risk. The latter two did hit dry holes--TNF and CD4. But

¹See appendix G to this volume.

when these two hit a dry hole, it didn't bankrupt the company. If the company had spent all of its cash on a clinical trial, had nothing left, and it was a dry hole, the company would have been out of business, because it wouldn't have been able to raise any more money. So it was like a giant oil drilling project. They hit two pretty good gushers here, one smaller one, and because these worked out so nice, investors were willing to put in more money for the next two. Investors came out whole on those. They didn't lose money. But the era was over on these by 1986.

Bugos: In addition to forecasting the revenues for the product, did you forecast the amount that the clinical trial would cost? There are differing amounts raised by each partnership. Was the partnership limited in the amount that it could raise?

Middleton: Yes. There's a whole provision in here on what happens if you don't have enough money. If the trial was going well, the company would have an incentive to pick up the remainder of the funding, which it did. Genentech did not get tPA approved for a 34 million dollar clinical trial. They ended up spending three times that amount because of the delays and everything. But it was clear by then that the product was going to be successful, so they were able to get money from other sources.

With this one [points to binder for Genentech Clinical Partners I], the 55 million dollars was probably enough to finish the clinical trials for growth hormone and gamma interferon. But Genentech sponsored other clinical trials on gamma interferon after this was over.

Partnership Holds the License ##

Bugos: One question, on ownership, specifically. Did a patent transfer, for a specific disease indication, to the partnership? Explain again the intellectual property, and what you mean that the partnership owned the product.

Middleton: Basically, it's a license. Read the summary. That's the easiest way to understand it. [reads from Genentech Clinical Partners I prospectus]¹ "The partnership will hold a license for the manufacture and sale of tPA in the United States using recombinant technology developed by Genentech, blah, blah, blah." They owned the rights, all the rights that Genentech had, they had the license to. Then Genentech had an option to get the rights back. So the license was a holding pattern. It was a little bit like collateral for the money that the investors put up. If Genentech did not exercise its options, or did not fulfill its obligations under the contract, then the partnership had the right to take the product and sell it to somebody else. That's the quid pro quo. They also did a license like that in Japan and in Europe, which they might have used to fund the shortfall in the American clinical trial.

I'm curious to see what the projections were on tPA here. To see how close we were. [reads the prospectus] Not bad. It says \$275, \$280 million. I think we did that. Projecting revenues ten years out is not an easy business. It looks like the projections for growth hormone and tPA were pretty accurate. The returns to investors were really based on those projections. It could be more, it could be less, but that's why it worked out to what investors

¹See appendix G to this volume.

were expecting. Gamma interferon did not become a big product under Genentech. It's going to be a big product under InterMune Pharmaceuticals, who subsequently licensed it.

Getting Idea for R&D Partnerships

Bugos: Going all the way back to the beginning--Bob Swanson read *Scientific American* to come up with his idea for recombinant DNA. Where did you get your Eureka insight for these partnerships?

Middleton: I was at a financial meeting, put on by Coopers & Lybrand in San Jose, and I met Gene Amdahl and his CFO. They talked about this deal to found Trilogy, to build this three dimensional chip that was going to have huge amounts of processing power. The thing didn't work. It was a total bomb. But Gene Amdahl had a big name--he was the scientist behind the IBM 360. Then he founded Amdahl Computer. Rather than take venture capital--he might have gotten 5 million dollars for half the company--he convinced Merrill Lynch to put up 50 million dollars through an R&D partnership. Because it was not an equity instrument, he could still maintain control of the company, which was very appealing to him. He and his CFO did this deal and set it up like an R&D partnership for the development of Trilogy. I looked at that.

We were doing a lot of R&D, and there was this big funding valley sometimes called a J-curve. To become a FIPCO the amount of money you had to spend for clinical trials could kill you. I got this idea to use this vehicle and presented it to management. We had an off-site meeting in Silverado, the country club near Napa. It was just after the IPO, 1980/1981. Everybody was there, and we had a brainstorming session on some of the ways we can raise money. Tom Perkins said we can take out a loan. There's obviously more equity. Then I introduced this concept of R&D partnerships, gave a little presentation on it. Initially people were kind of skeptical. Then, when it became clear we had to explore all the avenues for raising money, Swanson said, "Let's give this a shot. Talk to the bankers and see if you can convince them to do it." I worked on them. Bud Coyle introduced me to Stephen Evans-Freke who was a banker at Paine Webber. He subsequently set up Paine Webber Development Corporation which did a bunch of these. Stephen and Paine Weber did the most in the industry. He did the ones for Amgen, Centocor, for all the big guys--though this was the first one. We gave him the idea, and then we did some together.

Legal Opinions

Bugos: Who on the legal side was helping you structure the contracts?

Middleton: Davis Polk & Wardwell. They did most of the legal work on these. They are a New York-based firm. They were the experts. They gave tax opinions on two aspects: the deductibility of the R&D expense for investors, and the tax treatment for the buyout, which was long-term capital gains. So we got that benefit on the back end and the deduction on the front end. So their tax opinion was really important.

Bugos: Did you have to beef up the treasury function to deal with the taxes, or was that all handled elsewhere?

Middleton: The tax structure was handled by the lawyers. The treatment to Genentech was pretty straightforward. The money that came into Genentech was under an R&D contract, so it's just revenue. We had lots of tax loss carry-forwards anyway, so we weren't really paying any taxes for a while. The other side of the coin was Genentech spent 450 million dollars to get the products back, then they got to deduct the cost of those shares from their tax return. It was all a paper transaction, to give the investors the shares. They had to issue the number of shares that were specified in the contracts.

Historical Significance of R&D Partnerships

Bugos: One more question, then I'll let you go. These partnerships took advantage of a tax situation that just happened to arise twenty years ago. But in terms of the larger impact of these R&D partnerships on the development of the industry, or venture capital, or whatever, how do you place these in the bigger picture?

Middleton: R&D partnerships were the mechanism that allowed biotech companies to become FIPCOs. That's the big picture. Look at who used them, everybody who developed the big products early on. Amgen used them, Genentech used them, Biogen used them, Cetus used them for IL-1 [interleukin-1], Centocor used them for Centorex, and Genzyme used them. The only one that didn't use it was Chiron; I'm not quite sure why they didn't. Though they merged with Cetus, and they got the benefit of IL-2 [interleukin-2] which was developed with an R&D partnership, there was some thinking that no one could become a pharmaceutical company, because they couldn't afford to pay for the clinical trials without having revenue to generate the profits to pay for the R&D and trials. So this really got the industry going.

When these R&D partnerships went away in the late 1980s a lot of people started thinking that maybe the right strategy is to not become a FIPCO anymore. Then something else happened. Investors no longer expected companies to operate at a profit or a break-even prior to getting an FDA-approved product. They also expressed a willingness to put in more money during the startup phase. Genentech raised a very small amount of money--\$4 million in venture capital; \$10 million from a corporate partner; \$35 million in an IPO. Today, you'd raise \$200 or \$300 million under those same parameters. Today you'd use equity capital. And if the markets are good, they can raise the capital and afford to pay for these clinical trials. If the markets are bad they can't.

The R&D partnerships allowed the first generation of biotech companies to become FIPCOs. The ones that are the biggest companies today in the industry.

Bugos: Thank you very much.

Joint Ventures: Genencor

[Interview 3: August 31, 2001] ##

Bugos: In our third interview, I'm hoping we can start with the joint venture strategy of Genentech, focusing on the formation of Genencor in the spring of 1982--the strategy you followed in setting that up, your relationship with Corning, your personal role in setting it up and serving on the board of directors, and how this joint venture structured the others that came after.

Middleton: OK, the joint venture strategy at Genentech-- Recombinant DNA technology and genetic engineering technology affected many different markets and products. There was a lot of interest--not only from people in the pharmaceutical industry but also in the chemicals industry, the materials industry, the diagnostics industry--as to how molecular biology and recombinant DNA would impact their business. Also in the equipment manufacturing industry, since a lot of research lab equipment and a lot of production equipment is used. We saw there was an opportunity for Genentech to enter into a series of partnerships with companies that were outside our stream of central interest. We determined pretty early that pharmaceuticals was the highest value-added use of molecular biology. Genetic engineering, after all, has to do with genes and living systems, therapies of treating disease, and mechanisms of diseases, and so forth.

The other reason Genentech was interested in the joint venture strategy was that it was a way to derive value from different applications of the technology without having to invest significant funds ourselves. Our partners could invest the funds. It was a way to derive income for the parent company to support our own development activities in pharmaceuticals and health care.

Corning's Interest in Biotech

Middleton: So we began discussions in 1981, 1982 with Corning. Corning had a business in diagnostics and in biological sciences. They were trying to figure out how to get involved in biotechnology. They were interested in working with one of the major new companies to set up a vehicle for consolidating their own activities creating a critical mass structure. They talked to a lot of the new companies in the industry--Cetus, Biogen, and others--and liked Genentech the best. We started talking about how to work together. Corning has a wonderful group of managers. It's an older aristocratic company because the Houghton family has for many years run the company. Corning, New York is a company town. They started in glass and moved into high tech--biological sciences and health care on the one hand, and more recently information technology and telecommunications and fiber optics on the other hand.

Fifty-Fifty Joint Venture

Middleton: Corning had a history of doing joint ventures. They also had a philosophy on doing joint ventures: a joint venture is a true partnership, meaning an equal partnership, like a marriage. Both partners had to be perceived as equal both in terms of their contribution and their ongoing roles. If one partner was no longer pulling its weight then the other should take over. They believed only in fifty-fifty joint ventures. They believed each partner should contribute equal amounts of technology and dollars.

The dollars part was a problem for Genentech because we didn't have a lot of money. The way we got around that was by having Corning invest 20 million dollars in Genentech as a direct investment in the company--they purchased 20 million dollars worth of stock--and then we were committed over time--over five or ten years--to contribute up to 20 million dollars in the venture. And we could make in-kind contributions of equipment and research, and they gave us credit for that.

We set up a board of directors, with four members of Genentech on the board and four members from Corning on the board. The joint venture was run by Bob Leach, who was CEO, and who came out of Corning. It was located in South San Francisco. I served as a Genentech director.

Enzyme Products for Nonmedical Applications

Middleton: The business purpose of Genencor was to develop recombinant DNA applications in non-pharmaceutical areas, looking primarily at the production of enzymes used in the production of foods. Enzymes were used in the production of cheese and wines and various foodstuffs, and in processing paper, for example. Another major application was the use of enzymes in laundry detergent. Procter & Gamble ended up being a very large customer.

There were some traditional enzyme companies in the world--Novo Nordisk, Gist Brocades in Holland--who had enzyme production systems based on conventional technology and conventional organisms. With recombinant DNA you had the ability to amplify the production of enzymes. Enzymes are just proteins. Just like Genentech's recombinant drugs are proteins, enzymes are proteins too. [tape interruption]

Starting in 1982, their board would meet frequently, about every two months. Most of the scientific value added came out of Genentech. Genencor recruited their own staff, but there were several scientists from Genentech, including Herb Heyneker who joined Genencor as director of research. Under Bob Leach they developed several successful commercial programs. Generally, it took longer in that area because the value added on the individual products is lower. The selling price of enzymes is less than the selling price of pharmaceuticals. And the consumers are very conservative.

Genencor became a very successful company. It's one of the largest biotech companies in the world that's focused on non-pharmaceutical areas. They've brought in capital from

new partners, including Eastman Kodak and Cultor, a Finnish firm, and today they're a publicly-traded company.

Both Corning and Genentech were satisfied. Both companies ended up divesting their stakes for a profit because Genencor's business was no longer central to the long-term strategic interests of either Genentech or Corning. It became a successful business enterprise in its own right.

Bugos: How important was production? This venture came at a time when Genentech was already making huge investments in new production facilities. Did Corning really expect this to be a manufacturing enterprise?

Middleton: Not really. Genencor had an enzyme manufacturing capability--a small capability that they acquired from Rohm & Haas, I believe in Pennsylvania. This was a traditional enzyme plant. The reason for buying it was to get experience in running it. It was a break-even business, an existing business, not used for these genetically engineered enzymes. By the time Genencor was ready to supply enzymes to Procter & Gamble and to the cheese companies, it did have to make a major capital investment. Those investments were made by some of the newer strategic partners, like Kodak. This was after my involvement there. They did build some large production facilities.

They started off tolling the manufacturing, meaning they hired out someone else's facility. I believe they used Abbott's facility near Chicago, initially. One of the nice things about enzymes is that they don't have the same stringent quality control criteria that a pharmaceutical would have. So you can use systems that are a little more generic in nature. You can use fermenters that may have been used for other things. So Genencor was able to delay capital investment in the production side of the business. Ultimately, the production side of the business did require a good bit of money.

Resources from Genentech

Bugos: And in terms of allocation of resources from Genentech, could employees of their own free will decide to go to Genencor?

Middleton: Yes, though that was a question. Bob Swanson was very concerned about Genencor sucking away some of the top people. There weren't that many people who left. It was a good opportunity for some Genentech people to get in on the ground floor of a new company. Genencor did have a stock plan; 10 percent of the company was set aside for employees. There were people who had moved beyond their specific roles at Genentech and needed to move on to other opportunities. Most of the employees were recruited from outside of Genentech. There were four or five people who joined from Corning who were good people, but they had kind of become orphans at Corning because Corning wasn't getting into this business on their own. One of the reasons for basing it in California was to create the sizzle and appeal of a young startup in biotech. That was part of the draw in attracting top scientists. That strategy worked pretty well.

Genentech Industrial Products Group

- Bugos: Was there an active enzyme research effort at Genentech before Corning approached you?
- Middleton: We had an industrial products group which included enzymes and industrial chemicals--like looking at recombinant DNA for the production of rubber. That was headed up by Gary Steele on the business development side, and [Reinaldo H.] Ray Gomez on the research side. Genencor was an outgrowth of that group. The realization of industrial products was through the joint ventures.
- Bugos: So new product development for diversifying no longer was done within Genentech?
- Middleton: Business development still had a function. At one point it was divided into three areas--pharmaceuticals, agriculture, and industrial products. Industrial products was the first to disband, then agriculture. Doing these joint ventures was a pretty creative way of realizing the value of these different initiatives, taking the cost of them and putting it off the balance sheet.
- Bugos: Was there much debate within Genentech on whether to spin these off and focus on pharmaceuticals?
- Middleton: No. Even look in the original plan. You have to focus on the job you want to get done, otherwise you don't get anything done. A lot of companies get indigestion. Genentech certainly was undertaking a broad variety of things at that time. We focused on pharmaceuticals, and we also focused on specific pharmaceuticals--evaluating those within the families of pharmaceuticals available for us to work on.

Other Joint Ventures and Their Significance

Agricultural Products

- Bugos: You mentioned agriculture, and later there was a joint venture devoted to agricultural products. But at that time you were developing bovine interferon and growth hormones without a joint venture.
- Middleton: There were several programs devoted to agriculture. There was one with Monsanto for somatotropin which, subsequently, Monsanto invested a lot of money in. This is growth hormone for cows and pigs. It became somewhat controversial. When you give it to cows it basically improves the quantity of milk, so it had an economic impact on farmers. That was a very big effort early on at Genentech.

Another effort was for bovine interferon, which was for shipping disease. It was to protect animals from getting a flu, basically respiratory trauma, while being shipped on rail

cars to market. A large percentage of animals get sick, lose weight, or die. Bovine interferon was an internal program. It was funded by an outside group called Granada, which was a Texas-based R&D partnership. It was like an R&D partnership but funded by a single partner who took the write-offs and would get part of the royalties on the back end.

Middleton: The agricultural program ultimately was sold to Ciba-Geigy for 45 to 50 million dollars around 1985. There was a group in Genentech who wanted to develop those products in house, a group that came out of the Eli Lilly Elanco Division, which was then Lilly's agricultural products division.

But Swanson and the board decided that this was not something central to our business. Agricultural markets are generally slow to develop. Farmers take a while to make up their minds, the products are lower margin, and there's a lot of testing involved. So after four years of working on it, Genentech decided it was better left to a larger company already in the agricultural chemicals business. And getting 45 million dollars in cash is not bad if you have other things to do with it. So the agricultural business got sold and the business development people dispersed.

Choosing a Joint Venture Arrangement

Bugos: Having seen the biotech industry develop, you know that alliances are important for any young biotech company. With Genencor, why did you decide to do the joint venture--that specific corporate governance structure--when you could have done a license agreement, a research and development contract, or any other type of alliance vehicle? Why a JV?

Middleton: The main reason we did a JV was because of Corning. They had the most successful track record of any company doing JVs. Corning wasn't interested in licensing the technology from us, because they didn't have the know-how to develop it on their own. Another reason you do a corporate joint venture instead of a license is that a joint venture can target an entire field. We knew that some industrial enzymes were exciting to work on, but we didn't know all the enzymes.

Everybody realized this was a new business opportunity that would require a new business organization and a new set of people. In neither of the parent companies was their expertise in marketing enzymes, or manufacturing enzymes, or even determining which enzymes to develop. That had to be sorted through. That's why you did a joint venture.

Genencor was the most successful of the Genentech joint venture companies. That was a function of the strong commitments of the parents. The joint venture itself had a good management team, the freedom to determine a strategy and execute it, and adequate funding. Also, Genentech fairly liberally shared all its technology. The field was outside of pharmaceuticals, so the technology transfer was very good.

HP Genenchem

Bugos: Then why don't we contrast that with the other joint ventures.

Middleton: OK. There was one called HP [Hewlett-Packard] Genenchem. One of the big opportunities in biotech was in making instruments to be used by the industry--for example, DNA synthesizers, DNA analyzers, sequencers, protein synthesizers, protein sequencers. These machines did techniques that were done by hand, historically, in the lab. The first Genentech genes were synthesized by organic chemists, one step at a time. So the engineers of the world figured out ways to automate the production and analysis of genes with the appropriate robotics, materials handling, sample handling, and charting. It was the marriage of computers and chemistry. Applied Biosystems was the first company in this field, and ultimately the most successful company.

David Packard was on our board of directors. Hewlett-Packard was in the instrumentation for medical products business, today through Agilent--it's no longer part of HP. Back in those days, they thought they ought to have a piece of this action, too, by working exclusively with Genentech on the design and development of instrumentation to be used by biotech scientists.

The result was HP Genenchem. Their engineers would come over and follow the scientists around, discuss the customers' needs, and determine what opportunities there were to automate things. Here you had an engineer on the one side and the customer on the other side. Since Genentech had the biggest R&D effort in genetic engineering, they were the ideal company to go to school on.

This was a joint venture company, but Hewlett-Packard had a majority interest. Ultimately, after the engineers were done learning what they could by following the scientists around, it would become a Hewlett-Packard-owned entity. They would make automation equipment of use to Genentech but also sold to other people in the industry. There wasn't a lot of management structure to HP Genenchem. There was some money--less than 10 million dollars--that went to Genentech from HP. Some products did come out of it, but they were somewhat modest. I don't know enough about HP's product line today to tell you which products were derived from the HP Genenchem venture.

Instrumentation in the Biotech Industry

Bugos: Cetus was founded on a technology that robotically scanned petri dishes. Did their effort prompt you to find someone to develop better automation for you?

Middleton: Not really. That was kind of a dead-end product. That served a different purpose, though this general area of robotics, screening, has come back into the forefront several times. High-throughput screening, systems for managing multiple combinatorial chemistry, screening very large numbers of samples--that's all come back in the forefront several times--now through Celera Genomics. The whole genomics revolution is based on large

quantities of materials handling. But Cetus didn't have a real advantage there as far as biotech was concerned. They did have one laboratory technology that did turn out to be very important later on, called PCR [polymerase chain reaction].

##

Middleton: PCR was invented by Cetus--an outstanding analytical technique. It identified segments of DNA which could then be cloned for making products. They were paid several hundred million dollars for that by Roche who bought it when Cetus was divided up and sold to Chiron. The PCR piece went to Roche.

Instrumentation has continued to be an important part of this industry. There have been several generations of plays in instrumentation. Molecular Devices was another company. The former head of business development in the industrial applications area, Gary Steele, went on to become CEO of that company. Molecular Devices developed tools for biotech companies for manufacturing, using sampling, testing, and quality control.

Bugos: Did the formation of HP Genenchem affect your relationships with your instruments suppliers? Did you have a lot of instrumentation suppliers?

Middleton: Yes. We bought from a lot of companies, from Applied Biosystems. I don't think it affected our relationships, because Genentech was a big customer. We didn't publicize it widely. HP Genenchem never turned out to be a real problem for anybody.

Bugos: Was it a problem, within Genentech, in terms of allocating resources and manpower to the effort?

Middleton: No. There was a board of directors, and maybe a coordinating committee. They would talk about areas of opportunity, and then the engineers would follow the scientists around and figure out how to automate something. So the money we got there was really gravy. We were never planning on making much money out of this. To the extent we can automate something, we can do it more efficiently, it costs us less, and it makes the research go quicker. That was the principal advantage to Genentech.

Travenol Genentech Diagnostics

Bugos: OK. What came next?

Middleton: Travenol Genentech Diagnostics. That was between us and Baxter--it used to be called Baxter Travenol. This joint venture was done at a very high level. [Vernon R.] Vern Loucks, the CEO of Baxter, was introduced to us by [Sanford R.] Sandy Robertson of Robertson Stephens. Baxter was more in the hospital solutions business; supplying solutions, diagnostics, and all kinds of equipment and catalog items to hospitals. Historically, they had been a technology-based company, but they had become more of a manufacturing and supply company than an R&D company. Vern Loucks came out and met with us several times, and we came up with an idea.

One advantage of recombinant DNA is for diagnostics. For every therapeutic you come up with, you can imagine a diagnostic to be able to measure the level of the drug or protein in the blood, or the antigen or the microbe or the virus that you're trying to treat. There was also the possibility of producing monoclonal antibodies using recombinant DNA.

Vern had some traditional diagnostics--like sticks with solution in them. You mix the solution back and forth and it changes color and tells you something about the condition of the blood. They had a business that did maybe \$20 million in revenues, total. But prices were coming down, and they were trying to decide whether to fish or cut bait on the diagnostic business. They decided to try to make something out of it.

They agreed to form a joint venture with us--fifty-fifty. We gave this joint venture the rights to all of our diagnostics technology which, in theory, should be pretty valuable. They would throw in their existing diagnostics business, and they agreed to fund it for the first three years. They agreed to put in 10 to 15 million dollars. Some Genentech people were assigned to this, and they had some good ideas, initially.

But the joint venture didn't work, primarily because some of the key Genentech people left. It was unfortunate. The other reason was that this subsidiary--that Baxter had given to the joint venture--started to lose money. Their diagnostics business was really tanking. Genentech had to incur more losses, which it wasn't counting on. So Swanson went back to Vern Loucks and said "We want out of this thing. You can take it all back." I was only involved in that joint venture, personally, for less than nine months. I negotiated putting it together. We probably got \$10 to \$15 million out of it, but two or three years later it was unwound. Their business was really tanking.

Bugos: How important was that venture as an opportunity for scientists to pursue monoclonal antibodies, which was not something done inside Genentech otherwise?

Middleton: It was pretty important. It should have been an excellent vehicle to pursue monoclonal antibodies but, unfortunately, the level of staffing never reached critical mass. Especially no first-class scientists. A medical person was on the board. There was a general manager from the Travenol Diagnostics division who became the scapegoat for the whole thing. But he didn't really have much technology to offer. He was just pumping out diagnostics with no capability to develop new products. Their R&D was focused on existing products. It was just a bad marriage. I think they were expecting Genentech to develop new products to save their bacon. But it just never got to that point of development.

Diagnostics as a Distinct Business

Bugos: When you talk about the close coupling between therapeutics and diagnostics, it wasn't close enough that Genentech would have developed diagnostics on its own?

Middleton: I think diagnostics was really a separate business. They're sold through diagnostic testing labs and the technology changes very quickly. Every two years you might get a new diagnostic test that does something just a little better. Somebody else has a patent on it; they

make a killing for a while. Some diagnostics tests have been monopolized by some of the largest companies. And this is an industry that's consolidated and consolidated. Coming had a clinical diagnostics business which they subsequently sold. It's a tough business to make money in--particularly for a small company. It ends up being more of a marketing game than a technology game. We could have developed diagnostics, but it would have been a diversion from our main business. So we decided to joint venture diagnostics, to get leverage from outside parties. It would have been terrific if we had joint ventured with Abbott Laboratories, but Baxter wasn't the right partner.

Joint Venture Returns to Genentech

Bugos: When you say the losses began to pass through to Genentech--there was no liability barrier between the joint venture and Genentech?

Middleton: There was a liability barrier, but we owned half of the venture. You have to consolidate losses just on a pass-through basis from a subsidiary. And that wasn't something Swanson wanted to do. This may show up on some of the statements. [tape interruption]

I'm looking at the 1987 annual report here, on page thirty-five under note one "related party transactions." It points out the impact of some of these joint ventures. In 1985, Genentech received \$32.3 million of revenues from these joint ventures, which included Genencor, HP Genenchem, and Travenol Genentech Diagnostics. They received \$30.7 million in 1986, then in 1987 it dropped to \$6.4 million.

Again, Genentech was able to tap into these joint ventures as a source of cash to support its R&D efforts prior to the major uptick in its own product revenues, which by 1987 had kicked in with both growth hormone and tPA. Product sales in 1987 were \$141 million, up from \$43 million the previous year, and only \$5 million the year before that. So the joint ventures were able to help Genentech make the transition in earnings from contract research with affiliates to its own product sales. That was an important part of the strategy.

PruTech Research and Development Partnership

Bugos: One more joint venture happened during your time there, and that was with Lubrizol for the production of vitamin C. Were there others?

Middleton: No. There was PruTech, which worked on rubber, but that was more of a contract research program. The idea there was to make the rubber precursor found in rubber plants. PruTech was a British-based venture capital organization. They were funding this project more as a high-risk venture, and we received revenues for doing the research. There was some success, but that never got commercialized. They lost interest in it and just stopped funding it.

GLC Associates

Middleton: GLC Associates, which was the Lubrizol venture to make vitamin C, was just starting up at the time I was leaving. Lubrizol basically made additives, lubricants. It was a petroleum-based specialty chemical company, and one of the early investors in Genentech. They put 10 million dollars into the company in 1979 and became one of the largest shareholders. They were very interested in the application of biotech to make specialty chemicals, though the technology was a bit too early. And in chemicals, the value added is much lower, and to make tank car quantities of chemicals is a bit beyond the scope of biology, even today. Ethanol came along for a while. But vitamin C was a useful chemical, so they worked on that.

I don't really know what happened to the venture. There was an anti-trust suit in the early 1990s on the manufacture of vitamin C. There was price collusion between Hoffmann- La Roche and three or four other companies. Lubrizol wasn't part of that. To my knowledge they never commercialized the technology. They probably sold it to one of the vitamin manufacturers.

Bugos: When you got the 10 million dollar private placement from Lubrizol years earlier, there was some indication that Genentech would continue to explore possibilities for developing products together.

Middleton: Exactly. This was one of them. They were interested in an option on industrial chemical applications of the technology--that was a loosely written agreement, but we cooperated. Don Murfin attended all the board meetings; we explored a number of different types of chemical applications. They were pretty slow in moving this to fruition, but eventually we settled on vitamin C as something that would be a useful industrial chemical. But the biological systems were just too far afield from the large-scale procedures that are done in chemical plants. The technology never got to the point where it could have a significant impact on their business. Needless to say, they made a lot of money on Genentech as an investment. [laughter]

Bugos: Again the question of the allocation of resources. Was it a drain on Genentech in terms of the scientists or production capability to participate in this joint venture?

Middleton: No. This was probably a one- or two-person effort. To work on a project like this--where you're looking at a chemical pathway in a microorganism--that doesn't require a lot of scientists. You need to go sequentially through a series of steps. That can only be done by one or two people. It doesn't help to have twenty people working on it simultaneously. So it was not a significant consumer of science talent.

Joint Ventures as Managerial Training Ground

Bugos: What about as a consumer of legal talent. Did you have someone helping you set up these JVs? You're almost doing it in an assembly-line fashion.

Middleton: Yes, we had our very able legal staff. [Thomas D.] Tom Kiley, general counsel, then Brian Cunningham after him. They both were involved with these JVs. We also had Lee Benton at Cooley Godward. He participated with me on the Genencor joint venture, Tom was also heavily involved in that one. I was primarily the finance person and the deal person on the JVs. Then people like [Michael J.] Mike Ross on the scientific side, Ray Gomez from the industrial side, Gary Steele from the business development side, [William H.] Bill Rastetter from business development. All of these people went on to become CEOs of other companies. [laughter] All, with the exception of Tom Kiley. So it's a pretty illustrious group. So it was a good training ground.

Significance of Joint Ventures to Genentech

Bugos: So in addition to creating future CEOs, in the long run, in the big picture, what did the JVs mean to Genentech and to the industry as a whole?

Middleton: I would say three things. First of all, the joint ventures were a good way to take a very broad technology that affected many aspects of business and industry--health care, diagnostics, industrial products, foods--and pursue applications of the technology in each of those areas with partners who knew those businesses.

The other thing it did was provide resources back to Genentech, which I alluded to in the annual report, to fund the development of its pharmaceuticals business. They were big numbers. Probably over 100 million dollars came back from these joint ventures over five or six years. So that was an important part of the strategy of building a big company that was able to sustain itself.

Number three was that a number of these joint ventures found their way into the mainstream of their industries. Certainly enzymes are made and designed using molecular biology today. Certainly vitamins can be produced using genetic technology today. Certainly the instrumentation business has continued to grow and be driven by the biotechnology revolution. Those have become big businesses.

Their time has come and gone. JVs are no longer a critical part of Genentech. They filled an important niche at that point in time. They also indicated the very broad interest which existed in American industry in biotech, by the major players--Hewlett-Packard, Corning, Lubrizol, Baxter Travenol. All were interested in getting a foothold in this new industry. Partnering with Genentech was their vehicle for doing it. Certainly other companies had joint ventures too, but Genentech had more encompassing joint ventures. So that's my take on joint ventures.

Junior Common Stock

Middleton's Innovation

Bugos: Let's shift focus a little bit. The other thing I wanted to discuss was the junior stock, the employee stock option plans, the restricted series B and C shares, and the earnings convertible shares.

Middleton: OK. This is something I can take credit for. It was an idea I came up with--an idea that has unfortunately come and gone. The basic idea is that when you have a new venture you can sell people founders' stock. You let them participate at a very low price, before you go public, and it's a big incentive. It's the reason you're able to get people to leave large corporations, stable secure environments, and take a risk on making the big money. And the way that's largely done is that common stock is sold at a penny, ten cents. Preferred stock, which is sold to investors and has preferences on liquidation, is sold at maybe ten or twenty times the amount that the common stock is sold for. The common stock may be sold, or it may be given as options, but either way the employee has a call on the value between the ten cents and the ten dollars. So there's a very large incentive.

However, once a company goes public, the preferred stock goes away. You have one class of stock, common stock. The employees get that big bump-up at the time of the public offering. Generally employee shares are subject to vesting over four or five years, so they get vested, they get the big bump up, they can cash out or hold. But they have made their venture play at that point. They can continue to get options in the public company, but they don't quite have the same leverage on the upside that they once had.

I looked at all this and tried to figure out a way of creating this incentive for new employees and management in a company that is already public. Companies continue to be risky. The only difference at Genentech was that we used to be a private company without products and now we're a public company without products. [laughter] Is the risk really that much less to an employee coming in? My thought was that you can come up with *junior* common stock that has the same relationship to common stock that the common stock once had to the preferred stock. By making this junior common stock available to employees you can create the upside for them again.

Now, what is junior common stock? It's a class of stock that is only sold to employees. It has no value, no trading market, no liquidity, no redemption value. It only obtains its value if the company achieves certain milestones--revenues, earnings, and other things, like acquisition.

So you're a public company with no products. Someday you hope to have a product on the market doing revenues of \$100 million or more. That may be a long time and it may be a huge risk. And the only way we can get to \$100 million is to have a product of our own--we can't do it through contract research. But I can buy some of the stock today and hold it for five years, and if we manage to get the product through the clinical trials, through the FDA, manage to build the sales force, manage to sell it, then the junior common stock, also called earnings convertible or

restricted stock, would convert into common. It would convert up, just like the common stock converted up to the preferred stock price when you went public. That's why this was created. We recreated the incentive for employees--to buy cheap stock that would convert based on the future success of high risk events off into the future.

We ran this by our accounting firm, Ernst & Young. We calculated there's a 10 percent probability of this happening in the coming year, maybe a 30 percent probability of this happening in five years. You can discount all the values back. We got valuations from investment banks which defined the fair market value at which the shares could be sold.

##

Bugos: So these different types of stock--the restricted B and C, and the earnings convertible--were all part of this class of junior stock?

Middleton: Yes. It had several names, but it came to be known generically as junior common stock. Some lawyer gave it that name. It's a good name.

And there was a class of this stock available right before the IPO, because generally right before the IPO your common stock tracks up to your preferred stock price. The idea was to continue to give people an opportunity to make a ten times return. So if the stock is at \$35, the restricted stock at \$3.50 can become \$35, and hopefully the \$35 soon became \$70. And the \$3.50 became \$70. So you've made twenty times on your money. That is a big incentive for any employee and creates the same kind of risk-reward opportunity that a startup venture creates in attracting a new employee. And because of the long time frames involved and the kind of talent that we had to hire, we thought this was a very important incentive mechanism to have. We used it for about three or four years.

Accounting Debates

Middleton: The real issue was, from an accounting standpoint, how should this gain be treated? Is it compensation expense or is it a balance sheet and equity issue? If you're selling the stock at \$3.50 and then it's converting at \$35, is the difference between the \$3.50 and the \$35 compensation expense? Or do you account for it as the sale of a class of stock at \$3.50 and then there's no further impact on the income statement? Just like par value and paid-in capital. Once you have par value and paid-in capital on a balance sheet, it doesn't change because the stock price goes up. This was the issue.

These plans became all the rage. There were probably two hundred of them. The SEC found one that they particularly didn't like. One of the milestones that that company had put in was an IPO. Then the junior stock would convert from its low price into common stock. The SEC thought that should be compensation expense. After all, doing an IPO is not a highly contingent event. It doesn't connote any specific progress, just that you can sell stock to the public. That's not really a true milestone, in my view, of business success.

The Financial Accounting Standards Board was directed by the SEC to look at this. They came out with a ruling--that we argued strongly against--that these things would have to be accounted for as compensation expense. That made them untenable. Every year you had to take a compensation expense based on where your stock price was and the difference between that and how many shares vested for each employee. That meant that your compensation expense could be all over the map in any given year. Nobody could manage an income statement effectively.

The other monkey in the works was how the IRS would look at it. If it was compensation expense to the company, maybe it would be compensation to the employee also. The employee would have to pay taxes on it as ordinary income when the conversion event occurred. That was the big hammer out there.

I visited the SEC over this. The chief accountant there said that he wanted these to go away. They would come up with a pronouncement that after some date they would no longer accept the accounting for these kinds of plans. He said "I'll give you three months to clean everything up. You can sell all the stock you need to sell and you won't be penalized. But after that we're not going to allow it anymore." So we sold all the remaining stock in our plan to employees and recruited people. Then they came out with a white paper that said after such a date we're going to require that these junior common stock plans be accounted for as compensation expense. So there was an administrative death to the idea. After that it became too unworkable. It became a variable compensation plan.

I was arguing that stock options aren't accounted for as compensation. They clearly have value when you give them to somebody. They have the Black-Scholes value and the value between the exercise price and the market price. And the accountants said, "We agree with you. Someday they'll have to account for options." And they have been working on that issue over the last three or four years.

Unfortunately, the junior stock died. There were a lot of people who benefitted from it from a wealth creation standpoint. It was very useful to Genentech in being able to recruit, retain, and reward high-potential scientists and managers in the 1979 to 1984 time period.

Bugos: How many people got the stock?

Middleton: A few hundred. When I left there were six hundred people; probably two-thirds of them had it. Probably four hundred people, then. We probably issued a couple million shares of it. At maybe forty dollars a share, we probably issued 80 to 100 million dollars of it. That's a fair amount. If you go back and look in the annual reports, which I'll do right now. [tape interruption]

Junior Stock Vesting

Middleton: One of the advantages of this plan is that the board of directors could set important strategic goals for the company--upon the achievement of which the management would be rewarded by the conversion of the junior common stock into common stock. The series C restricted

stock, which was issued in May of 1981 and 1982, said that when the company achieved revenues of \$40 million and earnings of \$4 million, or upon the merger or sale of the company, the restricted stock would convert into common stock. In 1981, Genentech had revenues of about \$20 million--it was \$8 million the previous year--and had earnings of half a million. So, those criteria would have been met two or three years after the plan was written.

Let's look at the 1982 annual report. In 1982, there was an additional class of junior common stock which was called earnings convertible stock. It converted when management achieved a net income of 20 million dollars, or at least \$1.33 cents per share. That was at a time when net income was \$625,000. So going from a net income of \$625,000 and \$28 million in revenues in 1982 to a net income of \$20 million--that's a pretty significant increase. The company would have achieved that in 1985, 1986--three or four years later.

But it would only have done that with a significant product introduction. That's the important thing. For management to have been rewarded with this junior common stock, it would have had to have successfully navigated a product through the clinical trials, through the FDA, into the marketplace and generating \$100 million in revenues in order to make net income of 20 million dollars. So I think it was a pretty fair model for the board to use as an incentive for management. The accounting treatment killed it.

Bugos: So the values of the junior shares are set at 10 percent of the trading price of the common shares?

Middleton: Yes. And it had essentially no redemption rights. One-tenth of a vote, one-tenth of a dividend right. It was one-tenth of everything basically.

Proliferation of the Structure

Bugos: The legal structure for this type of stock-- Where would this have been laid out? And I ask that in part to learn how other companies would have learned about this particular innovation.

Middleton: It was set up through Cooley Godward. Lee Benton and I worked on it. Companies would have learned about it because stock plans are approved in proxy statements and stock plans are filed as exhibits to SEC documents. Plus, lawyers talk a lot to each other. And they have other clients and think it might be a good idea for them. It proliferated largely through Cooley Godward and by getting publicly filed documents from the SEC. My guess is that there were as many as two hundred plans out there and at that point the SEC became concerned about them. They were catching on like wildfire.

Bugos: Did companies come to you, asking you how to set them up?

Middleton: Oh, yes--I had a lot of people talk to me. But once they had the document it wasn't all that hard to understand. And lawyers tend to give more advice on those sorts of things than

CFOs. We were planning on writing an article about it for the *Harvard Business Review* but scuttled that when the plans were killed.

Junior Stock as Employee Incentive

Middleton: To us it seemed like a completely legitimate way to go, and I still think it is intellectually. If you buy off on the common stock and preferred stock model, then there's no way you can't buy off on the convertible restricted stock into common stock model. There's no reason intellectually. And that was our model. There's no reason you can't create a class of stock with one-tenth the value of the publicly traded stock. There's no reason at all. It just has to do with how the establishment wants to report earnings as a convention.

It's no different than selling a warrant on your stock. A warrant might sell for one-tenth the value of the common, it's just that the warrant is triggered by a change in the price of the publicly traded stock, and the junior common attains its value by the achievement of actual, fundamental financial goals of the company.

Bugos: How did the employees take to this? Did they understand what you were trying to do?

Middleton: The employees loved it. It doesn't take a genius to understand: "I can buy stock at \$3.50 and the publicly traded stock is trading at \$35. If I achieve my goals over the next three to four years, if I successfully introduce a product and see the earnings go from \$600,000 a year to \$20 million a year, then the value of my restricted stock has gone from \$3.50 to \$35 or even higher. That's attractive. I've made a lot of money."

To me it's a lot fairer than giving somebody stock options, because with options you might have done all those things and the stock still didn't go up. Maybe you did a great job getting your product to market; you got your stock options at thirty five and the stock is still at thirty five. You didn't get rewarded for doing a good job because of the stock market. That's not exactly a fair system.

Benchmarks

In Corporate Partnerships

Bugos: It strikes me as being very similar to the benchmarking agreements that you had with your major corporate partners. Was Genentech always a company that was forecasting, always benchmarking its progress and thinking of its performance as something that can be measured and predicted?

Middleton: We were a company that always had some carrots out there. It's an interesting observation. There were benchmarks in the stock plan. There were benchmarks in the contracts, research

benchmarks. There were benchmarks in the royalty payments. So as we continued to do a good job, these economic benefits would kick in. Most people don't mind paying you for success. That's the model Genentech used, and why they were so successful. As success kicked in, the rewards were greater over time.

Bugos: What is remarkable is that this was a new industry, these were new products, manufactured in a new way. And somebody, presumably you, had to figure out what that reward system is going to be based on and what the future value of these products will be.

Middleton: Starting in 1981, 1982, when we were just barely starting with our clinical trials for growth hormone, we had never taken a product through clinical trials before, had never taken a product through the FDA before, and had no marketing and sales force at all. The idea of doing all that and generating \$20 million in profits in three or four years--that was a big goal. That was a huge goal. That's why I think it was a fair incentive. People got a big reward if they got it done, but it had never been done before. There should be a big reward. [laughter]

Conventional wisdom at the time was that you cannot build a new pharmaceutical company. It's too hard, costs too much money, takes too long, the expertise needed is too great. Sitting here now, I'd have to say that we didn't know then whether it would be possible or not until we actually did it.

In Research Contracts

Bugos: So let's talk about the benchmarks in the licensing agreements. How did you structure those? What were your models?

Middleton: The idea of the benchmarks is pretty basic. Let's take the insulin deal with Lilly. I'm not going to remember all the details. A lot of people didn't think this was possible at all--using genetically engineered microbes to make pharmaceutical products. So sitting opposite Lilly, they're saying "We think this a really great idea, but we don't think you can do it at all. We're not going to pay you 30 million dollars, because we don't know if this technology is worth that or not." They say they'll pay us \$3 million; we say we want \$30 million. So the compromise is: "If we are successful in various steps along the way, one step at a time, you will pay us numbers that add up to our \$30 million. If we achieve every step, and five years from now, when you have a product you are selling, we will have gotten the \$30 million that this is worth."

Typically, there are some research benchmarks: product yield, the amount of protein per milliliter of fermentation broth, percentages of the cell that has the protein you want, making the first gram or first ten milligrams of a pure product, delivering to them the protocol for manufacturing a batch of this material, filing an IND [Investigational New Drug Application], getting permission from the FDA to start a Phase II clinical trial, getting human results from a Phase II clinical trial that are positive, starting a Phase III clinical trial, getting data from the Phase III trial that's statistically significant, filing an NDA [New Drug Application], getting FDA approval. Everything I told you there is a basis for a benchmark, and all of those benchmarks were used by Genentech in various of its contracts. The partner

will argue for making the benchmark payments bigger and bigger in the later years when there's more certainty and less risk on their part.

In Royalties

Middleton: There's also benchmarks having to do with royalties. If this is a 200 million dollar product, it ought to be paid at a 6 percent royalty. But if it's a 500 million dollar product, then we ought to get a 10 percent royalty. So you have a stepped royalty structure. It starts at one level. The big company argues that we have to pay all the overhead, we have to pay our sales force, we have to pay for our marketing campaign. We have to pay that whether it's a \$200 million or a 500 million dollar product. We're not going to know that at the beginning, but we still have to spend all that money up front. Then they acknowledge that if it's a 500 million dollar product, that they're making a lot more money for each incremental dollar of sales, so they'll pay you 10 percent rather than 6 percent.

Flexibility to Walk

Middleton: The other thing that's important about these deals is that it gives the large company the ability to walk at any point--which is a big advantage. Big companies like flexibility. Their budgets change, their priorities change, their strategies change, their management changes. Maybe three years into this they're not interested in this business anymore. So they don't want to spend any more money on it. So they walk. And they give it back to you. The ability to walk with limited downside is a good thing from a big company standpoint. They don't want to be obligated to spend another ten years on research. So the other feature of the milestone arrangement is--you pay us the milestones for as far as we've gone, but you're not obligated to go any further. If you don't go any further, it's over. A lot of companies do this. The benchmarks help large companies work with small companies in a way that they're comfortable. They're willing to pay for success. And they have the flexibility to walk away.

And it's outsourcing of R&D. Usually they have very large R&D budgets, but they're managing portfolios of things. In any given year the portfolio may be rich or it may be light. If it's light they may want to go forward with more of these programs; if it's rich maybe they want to cut them back. Having that kind of flexibility is important. Virtually all biotech companies do these kind of deals.

Of course, they're calculated in the so-called "bio-dollars." Which means companies add them all up and show them as one number. They say it's a 50 million dollar deal, but that's only information of limited use. Of the 50 million dollar deal, they may get one million this year and \$49 million in five years when they get FDA approval. There's a lot of room in between. [laughter]

Monetary Value of Benchmarks

Bugos: And how do you negotiate the value of reaching those benchmarks? Is it always related to costs and expenses? Or is it always that you want to be paid earlier, and they want to pay you later?

Middleton: It's partially related to cost. It's mostly related to value. It's a value proposition. Up front, there's usually a research contract component. Usually there's some part of the project that you can work on contract--the molecular biology, or the chemical synthesis, or the animal models. You want to get some dollars from a corporate sponsor to fund those research activities. It's a direct cost. You say: "I'm going to have six researchers and they're going to work on this for three years and it's going to cost me an average of \$250 thousand per researcher per year, so I want 4.5 million dollars for that."

Profit Sharing

Middleton: One other place cost comes into it--if you have a profit sharing deal on the back end, you might agree to split the profits fifty-fifty.

##

Middleton: Profit sharing is a good way to do deals, but you have to be able to do the accounting to determine what the profits are. Typically, a large company will market the product, and since they have a huge amount of costs in that sales force and advertising programs how much of that gets allocated to a product is a big issue. If they allocate all of it then you're not going to have any profits. So you asked about basing things on actual costs. That would be based on actual costs, but there's a negotiation over how much of that cost should show up on your P&L [profit and loss statement] for your profit sharing.

Relations between Contract Revenues and Royalties

Bugos: Was there always a relationship between contract revenues and royalties? In other words, did you consider these benchmark payments to be advances against royalties?

Middleton: No. In most cases there's three separate parts to a deal. There's the R&D piece. You're going to get paid to do this research, so you have certain responsibilities. Second piece is the milestone piece. That's really the incentive piece. You achieve clinical success, manufacturing success, how much extra do you get? These are the \$5 million, 10 million dollar milestones--really license fees, but they call them milestone payments. The third element of the deal is, upon commercialization, how are you going to be compensated for that success. Most commonly it's a royalty--a percentage of sales--or it could be a profit

share. Or it could be co-promotion, co-marketing. You sell X, you get to keep the profits on that, we sell Y, we get to keep the profits on that.

Bugos: And these deals were mostly with non-U.S. companies for licenses outside the U.S.?

Middleton: No. It was both with U.S. companies and non-U.S. companies. Some companies wanted the world, so we licensed them the world. Back then, though, it was easier to divide up the world. Give one company rights to Europe, another to Japan. [tape interruption]

Product Evaluation/Development Teams

Bugos: So the final set of questions--the product evaluation teams and the management issues those evoked, all revolving around the future value of a product. How did those function? What was your role in them?

Middleton: One of the biggest resource allocation and strategic planning questions was: Now that we have all these joint ventures to take care of the non-pharmaceutical stuff, what about the pharmaceutical stuff? Which products should we spend our resources on? The resources that we had worked so hard to get from all these deals. This is the strategy question leading to how we get to the product development teams.

We concluded that we should have our top five list. We prioritized all of our products. If you look at the business plans you'll see them listed from top to bottom. We decided we could not focus on more than five. Some were near term, some were far off. They all had good IP--intellectual property protection. They all had pretty clear clinical targets, that is, end points that could be measured in the clinic. They all were products that we had the right to make and sell ourselves; that allowed the FIPCO model. They all had a pretty good probability of success. So we boiled all our potential products down to five.

The product development teams-- Genentech started to get bigger. At this time there were four hundred, five hundred people. We had a fairly conventional management hierarchy--a manufacturing organization, a marketing organization, finance organization, business development, and so forth. But developing these products took us across those and the many scientific areas--molecular biology, organic chemistry, preclinical testing in animal models, clinical management, regulatory, process science which figures out how to manufacture things, then manufacturing. So we really used a matrix organization structure.

The product development managers--someone like Mark Levin, an early product development team leader, or Chuck Hoyne--they would be the product champions across the matrix, bringing together the focus and the attention of all the sciences. Each one was managing a product pipeline all the way through. To be on it was a pretty big responsibility and a pretty big honor. We took people from each of the disciplines, and they had to manage it across the whole thing. Every two years or so we'd review the responsibilities. Maybe it would become a clinical priority, so then the product development team leader would become a clinical person. And the person from R&D would go back and do something else. So these jobs rotated around.

There were several groups. The product evaluation team was more of an R&D management team that selected the products. The product development team actually managed the process after the selection had been made.

Budgeting Process

Bugos: What was the role of finance in all this?

Middleton: To come up with as much money as they said they needed (laughter). That was our role in it.

Bugos: You didn't question how they spent it?

Middleton: We had an active budgeting process. It was a bottoms-up process. Everything would be added up, and it would always be twice as much as what we could do. The management committee and Swanson would beat it up and say "We're not doing this, we're not doing that, we're going to kill this project." They'd send it back down and tell them to take another cut at it. We'd go back and forth a couple of times. All the time there were new ideas coming out of R&D, vying to be in the top tier status. Products would die. [tape interruption]

Certainly the products that were being funded by our R&D limited partnerships would be in the top five. Then there was a second tier--six through ten--of products that were always vying to get into the first tier. So there was a good backup behind them. It was a very rich pipeline.

One of the benefits of having a strong R&D person like Art Levinson in there running the company is that he can weigh the pros and cons of these product opportunities. It's always a fight for resources. Even when you're a bigger company, you're limited by your earnings. You can't spend everything you have in the bank. You have to earn money for your shareholders. They expect that.

Back then, basically we'd look at what it would cost us to do what we want to do. Then we'd say we need \$30 million in corporate deals, \$50 million in equity. The business development guys would go seek the corporate deals. I'd go do the financial and equity deals, and go get the money. That would be my goal. That was my contribution.

Bugos: Thank you very much.

TAPE GUIDE--Fred Middleton

Interview 1: August 3, 2001

Tape 1, Side A	1
Tape 1, Side B	7
Tape 2, Side A	15
Tape 2, Side B	22

Interview 2: August 22, 2001

Tape 3, Side A	26
Tape 3, Side B	32
Tape 4, Side A	38
Tape 4, Side B	45

Interview 3: August 31, 2001

Tape 5, Side A	48
Tape 5, Side B	54
Tape 6, Side A	60
Tape 6, Side B	66

APPENDICES

A.	Biography and Curriculum Vitae	71
B.	Fraternity Photographs of Fred Middleton and Bob Swanson, 1968	74
C.	Genentech, Inc., Sale of Series A Preferred Stock to the Lubrizol Corporation, 1979	75
D.	Fred Middleton and Herbert Boyer in Switzerland, 1980	101
E.	Amendment No. 2 to Form S-1 Registration Statement submitted by Genentech to the Securities and Exchange Commission, October 14, 1980	102
F.	Purchase of Common Stock by Corning Glass Works and Formation of 1982 Genencor, Inc.,	153
G.	Genentech Clinical Partners, Ltd., 1982	178
H.	Genentech Clinical Partners II, 1983	241
I.	Bob Swanson and Fred Middleton at Fred's 50 th Birthday Party, 1999	263

Biography**Fred A. Middleton****Sanderling**

2730 Sand Hill Road, Suite 200

Menlo Park, CA 94025

Phone: 650-854-9855

Fred Middleton has over twenty years experience in the biotechnology and biomedical industries in both corporate management and as an institutional investor. Mr. Middleton joined Dr. McNeil in late 1987 as a General Partner at Sanderling. Since 1987, Mr. Middleton has focused on venture capital investments in the corporate development of early-stage biomedical companies at Sanderling, serving as a founder, management team member and director of numerous start-up ventures in the Sanderling portfolios. Over the last several years, he has played active management roles at a number of Sanderling companies, including service as the Chief Executive Officer of Vical, DepoTech, Acea, Desmos, and Stereotaxis.

Mr. Middleton began his career as a consultant for McKinsey & Company's San Francisco office and was also a Vice President of Chase Manhattan Bank in New York. In 1978, Mr. Middleton joined the founders of biotechnology pioneer Genentech, Inc. to become part of the original management team, and served as Vice President of Finance, Administration, Corporate Development, as well as Chief Financial Officer. While at Genentech, Mr. Middleton completed over \$200 million in corporate partnering and institutional funding transactions, including the Company's initial public offering in 1980.

In 1984, Mr. Middleton founded Morgan Stanley Ventures, serving as managing general partner of an institutional fund raised to sponsor R&D funding arrangements of leading technology companies in the biomedical sciences and information technology fields.

Mr. Middleton earned a B.S. in chemistry from the Massachusetts Institute of Technology in 1971 and an M.B.A. with distinction from Harvard Business School in 1973.

CURRICULUM VITAE**Fred A. Middleton, MBA**2730 Sand Hill Road, Suite 200, Menlo Park, CA 94025 (650) 854-9855 fmiddleton@sanderling.com

PROFESSIONAL EXPERIENCE:

1987 to present

SANDERLING VENTURES

General Partner - Mr. Middleton joined Dr. Robert G. McNeil in 1987 to found Middleton-McNeil Associates, L.P., the General Partner for the Sanderling Funds. At Sanderling, Mr. Middleton has played a key role as a founder, management team member and/or director of many Sanderling portfolio companies including CoCensys, DepoTech, Desmos, Genteric, Novatrix, Regeneron and Vical. Mr. Middleton works closely with the Sanderling portfolio companies in strategic planning, fund raising, business development, and positioning the company for growth

1984 – 1986

MORGAN STANLEY VENTURES

President and Managing General Partner - Mr. Middleton was a founder of Morgan Stanley Ventures, establishing the firm's office in San Francisco, recruiting staff, and raising \$40 million fund to sponsor R&D funding arrangements at high technology companies. Under his direction in 1985 and 1986, the fund evaluated over 330 investment proposals and completed five investments, including two with biotechnology companies in 1985 and 1986.

1978 – 1984

GENENTECH, INC.

Vice President Finance, Administration, Corporate Development and Chief Financial Officer – Mr. Middleton joined Genentech as the eighth employee in 1978 with responsibilities for business planning, finance, human resources, facilities and corporate venture activities. He completed over \$200 million in funding transactions for Genentech, including several corporate and institutional private placements and the company's successful initial public offering in 1980. He negotiated contracts to fund research, formed several corporate joint ventures, and completed numerous corporate partnering transactions. In 1982, he conceived and established Genentech Development Corporation, serving as its President, to raise \$89 million in R&D partnership funding to sponsor clinical trials for human growth hormone, gamma interferon, and t-PA. By January 1987, these partnerships had paid out to investors \$450 million in common stock distributions, representing the most successful R&D partnership program completed by a company.

1977 – 1978

CHASE BANK

Vice President, Planning and Corporate Development - Responsibilities included strategic planning for the International, Real Estate, and Information Service Groups.

1975 – 1977

STUDEBAKER WORTHINGTON

Assistant to the Chairman and CEO - Assisted in corporate development, strategic planning and mergers and acquisitions.

1973 – 1975

McKINSEY & COMPANY

Consultant – Completion of assignments in strategic planning, investment analysis, and mergers/acquisitions for clients in the petroleum, chemical, and natural resources industries.

PROFESSIONAL AFFILIATIONS:

As of September 2000, Mr. Middleton serves as a director of the following portfolio companies:

- | | | | |
|---|---------------------------------|---|---------------|
| • | Regeneron Pharmaceuticals, Inc. | • | Cardionet |
| • | Novatrix, Inc. | • | Gentec, Inc. |
| • | Stereotaxis, Inc. | • | Cythera, Inc. |

EDUCATION:

1971	B.S. Chemistry	Massachusetts Institute of Technology Cambridge, Massachusetts
1973	M.B.A. with Distinction	Harvard Business School Boston, Massachusetts

ZEIGLER
NOTATORG. REID MARSH III
CONSULRICHARD I. KARASH
PRO CONSULROLF BRAUCHLER
QUAESTOR

EDWARD A. SEYKOTA



JOHN L. WYATT

Sigma Chi



M. J. C.



PETER S. MAYBECK



KENNETH P. MORSE



LANCE E. HANSCHÉ



JOHN F. WALTERS



ALAN L. DAVIS



BRUCE R. DONATH



ROBERT A. SWANSON



JAMES A. SCHWARZROCK



D. WAYNE WENGER



J. RALPH COLE



ALBERT C. MEYERER



JOHN S. WURTS JR.



THOMAS G. UNGER



GARY K. STIMAC



EDWARD M. DONIE



PHILIP C. ABBOTT



FRED A. MIDDLETON JR.



DAVID R. CUTRIGHT



ROBERT E. LINDGREN



RICHARD A. AKEMANN

GENENTECH, INC.

Sale of Series A
Preferred Stock

To

The Lubrizol
Corporation

1979

PREFERRED STOCK PURCHASE AGREEMENT

This Preferred Stock Purchase Agreement (the "Agreement") is made as of the 28th day of August, 1979, by and between GENENTECH, INC., a California corporation (the "Company") and THE LUBRIZOL CORPORATION, an Ohio corporation (the "Investor").

In consideration of the mutual promises, covenants and conditions hereinafter set forth, the parties hereto mutually agree as follows:

1. Purchase and Sale of Preferred Stock.

1.1 Authorization of Sale of Preferred Stock.

The Company has created a series of 90,000 of the 100,000 shares of its \$0.02 par value Preferred Stock ("Preferred Stock") entitled Series A Preferred Stock (the "Series A Preferred Stock"), the rights, preferences and privileges of which are as set forth in paragraph (c) of Article FIFTH of the Articles of Incorporation of the Company, a copy of which is attached hereto as Exhibit A. An aggregate of 61,371 shares of the Series A Preferred Stock has previously been issued and sold by the Company. The Company has authorized the sale of 25,000 shares of Series A Preferred Stock, (the "Shares") to the Investor. Subject to the terms and conditions of this Agreement, the Investor agrees to purchase, and the Company agrees to sell and issue, the Shares at the Closing (as defined below) for an aggregate purchase price of ten million dollars (\$10,000,000) in cash.

1.2 Closing. The purchase and sale of the Shares shall take place at the offices of Cooley, Godward, Castro, Huddleson & Tatum, One Maritime Plaza, 20th Floor, San Francisco, California 94111, on September 13, 1979, or at such other time and place as the Company and the Investor mutually agree upon in writing (which time and place are hereinafter referred to as the "Closing"). At the Closing the Company shall deliver to the Investor a certificate representing the Shares against delivery to the Company by the Investor of cash, a wire transfer or a certified or bank cashier's check in San Francisco Clearing House funds in the amount of the purchase price for the Shares.

2. Representations and Warranties of the Company.

The Company hereby represents and warrants to the Investor that:

2.1 Incorporation and Qualification to do Business; subsidiaries. The Company is a corporation duly organized and validly existing and in good standing under the laws of the State of California and has all requisite corporate power and authority to carry on its business as now conducted. The Company has no subsidiaries.

2.2 Capitalization.

(a) The authorized capital of the Company consists of 100,000 shares of Preferred Stock, \$0.02 par value per share, of which 61,371 shares are issued and outstanding, and 10,000,000 shares of Common Stock \$0.02 par value per share, of which 758,976 shares are issued and outstanding.

(b) Of the 100,000 authorized shares of Preferred Stock, 90,000 shares have been designated Series A Preferred Stock with the rights, preferences and privileges set forth in paragraph (c) of Article FIFTH of the Articles of Incorporation of the Company. Each presently outstanding share of Series A Preferred Stock is entitled to be converted into ten (10) shares of Common Stock.

(c) Attached hereto as Exhibit B is a list of each person who holds 1,000 or more shares of Series A Preferred Stock or 10,000 or more shares of Common Stock.

(d) There are no options, warrants, conversion privileges or other rights presently outstanding to purchase any of the authorized but unissued stock of the Company, except the conversion privilege in the Series A Preferred Stock presently outstanding and the options granted under the Company's Non-Qualified Stock Option Plan referred to below. The Company has adopted a Stock Purchase Plan under which a maximum of 150,000 shares of Common Stock may be issued to employees and consultants at prices of not less than \$.30 per share. To date, a total of 140,226 shares of Common Stock have been issued under the Stock Purchase Plan. In addition, a total of 9,750 shares have been authorized for issuance under the Stock Purchase Plan. The Company has also adopted a Non-Qualified Stock Option Plan under which options to purchase a maximum of 150,000 shares of Common Stock may be granted. To date, options exercisable for the purchase of 4,000 shares have been granted under the Non-Qualified Stock Option Plan.

(e) There are no preemptive, subscription or similar rights to purchase new issuances of the Company's stock.

(f) All outstanding Common Stock and Preferred Stock have been issued in compliance with all applicable federal and state securities laws and have been validly issued and are fully paid and nonassessable.

2.3 Authorization. All corporate action on the part of the Company, its officers and directors necessary for the authorization, execution, delivery and performance of all obligations of the Company under this Agreement and for the authorization, issuance and delivery of the Shares and the Common Stock into which the Shares are convertible has been or shall be taken prior to the Closing, and this Agreement, when executed and delivered, shall constitute a valid and legally binding obligation of the Company, enforceable in accordance with its terms, except as limited by applicable bankruptcy, insolvency, reorganization, moratorium, or other laws of general application relating to or affecting enforcement of creditors' rights, and except to the extent that the enforceability of the indemnification provisions in subparagraph 8.9 of this Agreement may be limited by applicable laws.

2.4 Validity of Shares. The Shares, when issued, sold and delivered in accordance with the terms of this Agreement for the consideration expressed herein, and the Common Stock into which the Shares are convertible when issued upon conversion of the Shares, shall be duly and validly issued, fully paid and nonassessable. The Investor will receive good and marketable title to the Shares free and clear of any mortgage, pledge, lien, charge or other encumbrance caused or created by the Company, subject, however, to restrictions upon transfer under this Agreement and any applicable federal and state securities laws.

2.5 Governmental Consents. All consents, approvals, orders, authorizations or registration, qualification, designation, declaration or filing with any federal or state governmental authority on the part of the Company required in connection with the consummation of the transactions contemplated herein shall have been obtained prior to, and be effective as of, the Closing.

2.6 Proprietary Agreements. Each of the employees of the Company has executed proprietary information and confidentiality agreements in substantially the form previously provided to the Investor, and the Company intends to have all of its future employees who have access to the

technology of the Company execute similar proprietary information and confidentiality agreements.

2.7 Compliance with Other Instruments. The Company is not in violation of any provisions of its Articles of Incorporation or By-laws, or, in any material respect, of any agreement to which the Company is a party or by which its property or business is affected, or any California or federal (or to the best of its knowledge, any other) judgment, writ, decree, order, statute, rule or governmental regulation applicable to the Company; the execution, delivery and performance of this Agreement will not result in any such violation or be in conflict with or constitute a default under any such provision; and there is no such provision which materially adversely affects the business, operations, affairs, prospects or condition (financial or otherwise) of the Company or its property or assets.

2.8 Misleading Statements. No representation or warranty by the Company in this Agreement or any statement or certificate furnished or to be furnished to the Investor pursuant hereto or in connection with the transactions contemplated hereby contains or will contain any untrue statement of a material fact or omits or will omit to state a material fact necessary to make the statements therein not misleading. The material which has been presented to the Investor by the Company has been prepared in a good faith effort to describe the Company's proposed products, the anticipated market therefor, and the Company's projected growth, and the Company is not aware of any material misleading statements or omissions therein.

2.9 Litigation. There is no action, proceeding or investigation pending (or, to the best of the knowledge and belief of the Company, any basis therefor or any threat thereof) which questions the validity of this Agreement or which might reasonably be expected to result, either individually or in the aggregate, in any material adverse change in the assets, condition (financial or otherwise), affairs, or prospects of the Company.

2.10 Patents, Trademarks. To the best of the Company's knowledge, the Company has sufficient right, title and ownership of all patents, information, proprietary rights and processes or is able to obtain on reasonable terms all permits, licenses and other authority, necessary for the lawful conduct of the business as proposed by the

Company. In this connection, the Investor has been informed by the Company of pending applications for patents by Stanford University and the University of California with respect to certain matters encompassed within the business of the Company and the status of license negotiations with Stanford University with respect to the Stanford University applications, and of the existence of a patent with respect to a possible product of the Company and the status of the Company's investigation of the coverage thereof. The Investor also understands that the pace of development in the Company's field of endeavor is very rapid and that the Company's competitors may have made or may be making patentable inventions. With the foregoing exceptions, the Company is not aware of any patents or proprietary rights or processes held or owned by persons other than the Company which may conflict with the lawful conduct of the Company's business as presently proposed.

2.11 No Conflicting Agreements. No officer, director or employee of the Company is obligated under any contract or other agreement, or subject to any judgment, decree or order of any court or administrative agency which would conflict with his obligation to use his best efforts to promote the interests of the Company or with the conduct of the Company's business as proposed by the Company. Neither the execution nor delivery of this Agreement, nor the carrying on by any officer, director or employee of the Company's business as an officer, director or employee will conflict with or result in a breach of or constitute a default under any contract or agreement under which any officer, director or employee is obligated.

2.12 Finder's Fee. The Company will not be obligated for any finder's fee or commission in connection with this transaction.

2.13 Financial Statements. The Company has previously furnished to the Investor a Balance Sheet, as of December 31, 1978, and Statements of Operations and of Changes in Financial Position, both for the year ended December 31, 1978, as audited and reported on by Arthur Young & Company, Independent Public Accountants. The Company has also furnished to the Investor an unaudited Balance Sheet, as of June 30, 1979, and unaudited Statements of

Operations and of Changes in Financial Position, both for the six month period ended June 30, 1979. Such statements are in accordance with the books and records of the Company and have been prepared in accordance with generally accepted accounting principles consistently followed throughout the periods indicated. Such statements fairly present the financial condition of the Company at the date of each such statement and the results of its operations for the periods specified therein (subject, in the case of unaudited financial statements, to year-end audit adjustments). The Company maintains a standard system of accounting established and administered in accordance with generally accepted accounting principles.

2.14 No Material Adverse Changes. Since June 30, 1979, neither the business nor the properties, condition (financial or otherwise), affairs or assets of the Company have been materially adversely affected in any way.

2.15 Title to Property; Liens. The Company has good and marketable title to all its properties and assets, including the properties and assets reflected in the Balance Sheet as at June 30, 1979, referred to in subparagraph 2.13, except the properties disposed of since such date in the ordinary course of business, and has good title to all its leasehold estates, in each case subject to no mortgage, pledge, lien, charge or encumbrance other than as disclosed in such Balance Sheet.

2.16 Taxes. The Company has filed all United States income tax returns and all state and municipal tax returns which are required to be filed by it and has paid or made provision for the payment of all taxes which have become due pursuant to said returns or pursuant to any assessment received by it except such taxes, if any, as are being contested in good faith, as to which adequate reserves have been provided.

2.17 Use of Proceeds. The Company intends to use the net proceeds of the sale of Shares hereunder, after payment of expenses, to construct and equip new laboratory facilities and for working capital.

2.18 Legislation. The Company is not aware of any pending legislation which would prevent it from carrying on its business or materially adversely affect the business, properties, condition (financial or otherwise), affairs or assets of the Company.

2.19 Technology. Except as set forth on Exhibit C hereto the Company is not a party to and neither it nor any of its property is bound by any contract, license, commitment or other agreement that recognizes or grants in or to any third party any right, title or interest in or to any patents, proprietary rights, technology or processes owned or developed by the Company or its employees (as employees of the Company).

3. Representations and Warranties of the Investor. The Investor represents and warrants to the Company as follows:

3.1 Authorization. This Agreement when executed and delivered by the Investor will constitute a valid and legally binding obligation of the Investor, enforceable in accordance with its terms, except as limited by applicable bankruptcy, insolvency, reorganization, moratorium or other laws of general application relating to or affecting enforcement of creditors' rights and except to the extent that the enforceability of the indemnification provisions in subparagraph 8.9 of this Agreement may be limited by applicable laws.

3.2 Finder's Fee. The Investor will not be obligated for any finder's fee or commission in connection with this transaction.

3.3 Business Plan Material. The Investor acknowledges that it has read the material presented to it by the Company, that it has interviewed the officers and directors of the Company concerning the Company and that it has received all the information it considers necessary or appropriate for deciding whether to purchase the Shares hereunder.

4. California Commissioner of Corporations; SEC.

4.1 Corporate Securities Law. THE SALE OF THE SECURITIES WHICH ARE THE SUBJECT OF THIS AGREEMENT HAS NOT BEEN QUALIFIED WITH THE COMMISSIONER OF CORPORATIONS OF THE STATE OF CALIFORNIA AND THE ISSUANCE OF SUCH SECURITIES OR THE PAYMENT OR RECEIPT OF ANY PART OF THE CONSIDERATION THEREFOR PRIOR TO SUCH QUALIFICATION IS UNLAWFUL. THE RIGHTS OF ALL PARTIES TO THIS AGREEMENT ARE EXPRESSLY CONDITIONED UPON SUCH QUALIFICATION BEING OBTAINED.

4.2 Investment Representation. The Investor acknowledges that it is aware that the Shares being sold

hereunder have not been registered under the Securities Act of 1933, as amended. In this connection, the Investor represents and warrants to the Company that it is acquiring the Shares for investment and not with a view to or for sale in connection with any distribution thereof (or of Common Stock issuable upon conversion of the Shares) or with any present intention of selling any of the aforementioned securities in connection with a distribution and it does not presently have reason to anticipate any change in circumstances or any particular occasion or event which would cause it to distribute any of the aforementioned securities. The Investor shall execute and deliver at or prior to the Closing a letter in the form attached hereto as Exhibit D confirming this investment representation.

4.3 Restricted Securities. The Investor understands that the securities it is purchasing hereunder are characterized as "Restricted Securities" under the Federal securities laws inasmuch as they are being acquired from the Company in a transaction not involving a public offering and that under such laws and applicable regulations the Shares may be resold without registration under the Securities Act of 1933, as amended, only in certain limited sets of circumstances.

4.4 Legends. It is understood that the certificates evidencing the Shares (and any Common Stock issuable upon conversion thereof) may bear one or all of the following legends:

(a) "These securities have not been registered under the Securities Act of 1933. They may not be sold, offered for sale, pledged or hypothecated in the absence of an effective registration statement as to the securities under said Act or an opinion of counsel satisfactory to the company that such registration is not required."; and

(b) Any legend required by the California Commissioner of Corporations.

5. Conditions of the Investor's Obligations at Closing. The obligations of the Investor under subparagraph 1.1 of this Agreement are subject to the fulfillment at or before the Closing of each of the following conditions:

5.1 Representations and Warranties. The representations and warranties contained in paragraph 2 hereof

shall be true on and as of the Closing, with the same force and effect as though such representations and warranties had been made on and as of the Closing.

5.2 Performance. The Company shall have performed and complied with all agreements and conditions contained herein required to be performed or complied with by it on or before the Closing.

5.3 Compliance Certificate. There shall have been delivered to the Investor a certificate, dated the date of Closing, signed by the Company's President or any Vice President certifying that the conditions specified in subparagraphs 5.1 and 5.2 have been fulfilled.

5.4 Opinion of Counsel. The Investor shall have received from Messrs. Cooley, Godward, Castro, Huddleson & Tatum, counsel for the Company, their opinion, dated the date of Closing, in form and substance satisfactory to the Investor, to the effect that:

(a) The Company is a corporation duly organized, validly existing and in good standing under the laws of the State of California, and has adequate corporate power and authority to execute the Agreement and to consummate the transactions contemplated thereby.

(b) The Agreement has been duly authorized by the Company and duly executed and delivered by an authorized officer of the Company and constitutes a legal, valid and binding obligation of the Company and, subject to bankruptcy and other laws of general application affecting the rights and remedies of creditors, is enforceable in accordance with its terms, except insofar as the enforceability of the indemnification provisions in subparagraph 8.9 hereof may be limited by law.

(c) The authorized capital of the Company consists of 100,000 shares of Preferred Stock, \$0.02 par value per share, of which 61,371 shares are issued and outstanding, and 10,000,000 shares of Common Stock, \$0.02 par value per share, of which 758,976 shares are issued and outstanding. The outstanding shares of Preferred Stock and Common Stock have been duly and validly issued and are fully paid and nonassessable. To the best of their knowledge, there are no options, warrants, conversion privileges or other rights presently outstanding to purchase any of the

authorized but unissued stock of the Company, except options exercisable for the purchase of 4,000 shares of Common Stock granted under the Company's Non-Qualified Stock Option Plan, the conversion privilege in the Series A Preferred Stock presently outstanding, and except to the extent that the pending purchases of 9,750 shares of Common Stock under the Company's Stock Purchase Plan constitute such a right; there are no preemptive, subscription or similar rights to purchase new issuances of the Company's stock; and all outstanding Preferred Stock and Common Stock have been issued in compliance with all applicable federal and state securities laws.

(d) The issuance and sale of the Shares pursuant to this Agreement and the issuance upon conversion of the Shares of the Common Stock into which the Shares are convertible have been duly authorized by all necessary corporate action of the Company, and upon issuance, sale and delivery for the consideration expressed in the Agreement, the Shares shall be duly and validly issued, fully paid and nonassessable, and upon conversion of the Shares into such Common Stock, such Common Stock will be duly and validly issued, fully paid and nonassessable. The Investor will receive good and marketable title to the Shares, free and clear of any mortgage, pledge, lien, charge or other encumbrance caused or created by the Company, subject, however, to restrictions upon transfer under this Agreement and any applicable federal and state securities laws.

(e) All authorizations, approvals, permits or consents, if any, of any governmental authority or regulatory body of the United States or of any state necessary or required on the part of the Company in connection with the lawful issuance and sale of the Shares pursuant to the Agreement have been duly obtained by the Company and the Company has complied with any and all applicable provisions of law requiring any designation, declaration, filing, registration or qualification with any federal or state governmental authority in connection with such offer, issuance, sale or delivery.

(f) The offer, issuance, sale and delivery of the Shares under the circumstances contemplated by the Agreement constitute an exempted transaction under the Securities Act of 1933, as presently in effect, and registration thereunder of the Shares is not presently required.

(g) To the best of their knowledge there is no action, proceeding or investigation pending which questions the validity of the Agreement or which might result,

either individually or in the aggregate, in any material adverse change in the assets, condition (financial or otherwise), affairs or prospects of the Company.

6. Conditions of the Company's Obligations at Closing. The obligations of the Company under subparagraph 1.1 of this Agreement are subject to the fulfillment at or before the Closing of each of the following conditions:

6.1 Warranties True on the Closing Date. The representations and warranties of the Investor contained in paragraph 3 hereof shall be true on and as of the Closing with the same force and effect as though such representations and warranties had been made on and as of the Closing.

6.2 California Commissioner of Corporations. The Company shall have received a permit from the Commissioner of Corporations of the State of California qualifying the offer and sale of the Shares pursuant to this Agreement.

6.3 Investment Representation. The Company shall have received from the Investor an executed investment letter in the form of Exhibit D hereto.

7. Financial Statements. So long as the Investor holds not less than 10,000 of the Shares being purchased hereunder (or an equivalent amount of Common Stock), the Company agrees to deliver to such Investor:

7.1 Annual Report. As soon as practicable after the end of each fiscal year and in any event within 120 days thereafter, a consolidated balance sheet of the Company as at the end of such fiscal year, a consolidated statement of income and surplus, and a consolidated statement of sources and applications of funds of the Company for such year, prepared in accordance with generally accepted accounting principles consistently applied and setting forth in each case in comparative form the figures for the previous fiscal year, all in reasonable detail and certified by independent public accountants of recognized national standing selected by the Company.

7.2 Quarterly Reports. As soon as practicable after the end of each of the first three quarterly fiscal periods in each fiscal year and in any event within 60 days thereafter, a consolidated balance sheet of the Company as at the end of such period, a consolidated statement of

income and surplus and a consolidated statement of sources and applications of funds of the Company for such period and (in the case of the second and third quarterly periods) for the period from the beginning of the current fiscal year to the end of such quarterly period, all in reasonable detail and certified, subject to changes resulting from year-end audit adjustments, by the principal financial or accounting officer of the Company.

8. Registration Rights. The Company covenants and agrees as follows:

8.1 Requests for Registration. If the Company shall receive at any time after four (4) years from, and within eight (8) years after, the Closing a written request from the Investor to file a registration statement under the Securities Act of 1933, as amended (the "Act"), or a similar document pursuant to any other statute then in effect corresponding to the Act, covering the registration of not less than 100,000 shares of Common Stock issued upon conversion of the Shares (such shares of Common Stock are referred to as the "Shares" in this paragraph 8), the Company shall use its best efforts to cause such Shares to be registered under the Act. The Company is obligated, however, to effect only one such registration pursuant to this subparagraph 8.1. Any request for registration under this subparagraph 8.1 must be for a firmly underwritten public offering managed by an underwriter or underwriters of recognized national standing reasonably acceptable to the Company. The Investor expressly agrees that any holders of Common Stock of the Company designated by the Company shall also be entitled to include shares of their Common Stock in such underwriting and registration in such quantity, if any, as would not, in the opinion of the managing underwriter(s), materially adversely affect the distribution of such Shares, and no reduction in the number of Shares of the Investor requested to be included therein shall be made as a result of any such inclusion.

8.2 Company Registration. If at any time within eight (8) years after the Closing the Company proposes to register any of its Common Stock under the Act on Form S-1, S-7 or S-16 or any form equivalent thereto adopted by the Securities and Exchange Commission ("SEC"), in connection with the public offering of such Common Stock solely for cash, the Company shall, each such time, give the Investor written notice of said determination. Upon the written

request of the Investor given within twenty (20) days after receipt of any such notice from the Company (which request shall state the intended method of disposition of any of the Shares proposed to be sold by it), the Company shall use its best efforts to cause to be registered, under the Act, such Shares as the Investor requests be registered.

8.3 Obligations of the Company. Whenever required under subparagraph 8.1 or 8.2 to use its best efforts to effect the registration of any of the Shares, the Company shall, as expeditiously as reasonably possible:

(a) Prepare and file with the SEC a Registration Statement with respect to such Shares and use its best efforts to cause such Registration Statement to become and remain effective;

(b) Prepare and file with the SEC such amendments and supplements to such Registration Statement and the prospectus used in connection therewith as may be necessary to comply with the provisions of the Act with respect to the disposition of all securities covered by such Registration Statement;

(c) Furnish to the Investor such numbers of copies of a prospectus, including a preliminary prospectus, in conformity with the requirements of the Act, and such other documents as it may reasonably request in order to facilitate the disposition of Shares owned by it.

(d) Use its best efforts to register and qualify the securities covered by such Registration Statement under such other securities or Blue Sky laws of such jurisdictions as shall be reasonably appropriate for the distribution of the securities covered by the Registration Statement, provided that the Company shall not be required in connection therewith or as a condition thereto to qualify to do business or to file a general consent to service of process in any such states or jurisdictions, and further provided that (anything herein to the contrary notwithstanding with respect to the bearing of expenses) if any jurisdiction in which the securities shall be qualified shall require that expenses incurred in connection with the qualification therein of the securities be borne by selling shareholders, then such expenses shall be payable by selling shareholders pro rata, to the extent required by such jurisdiction; provided, however, that in connection with any

proposed registration intended to permit an offering of any securities from time to time (i.e., a so-called "shelf registration"), the Company shall in no event be obligated to cause any such registration to remain effective for more than ninety (90) days.

8.4 Furnish Information. It shall be a condition precedent to the obligations of the Company to take any action pursuant to this paragraph 8 that the Investor shall furnish to the Company such information regarding it, the shares held by it and the intended method of disposition thereof as the Company shall reasonably request and as shall be required in connection with the action to be taken by the Company.

8.5 Expenses of Demand Registration. All expenses incurred in connection with a registration pursuant to subparagraph 8.1, including without limitation all registration and qualification fees, printers and accounting fees, and fees and disbursements of counsel for the Company, shall be borne by the Company, including the reasonable fees and disbursements (not exceeding \$20,000) of one counsel for the Investor; provided, however, that the Company shall not be required to pay for any expenses of any registration proceeding begun pursuant to subparagraph 8.1 if the request therefor is subsequently withdrawn by the Investor, unless the Investor agrees to forfeit its right to a demand registration pursuant to subparagraph 8.1 hereof. Any excess fees and disbursements of counsel for the Investor and any expenses of any registration proceeding begun pursuant to subparagraph 8.1 if the request therefor is subsequently withdrawn by the Investor (unless the Investor agrees to forfeit its right to a demand registration pursuant to subparagraph 8.1 hereof) shall be borne by the Investor.

8.6 Company Registration Expenses. In the case of any registration effected pursuant to subparagraph 8.2, the Investor and the holders of any other shares of the Company's Common Stock being included in such registration shall bear any additional registration and qualification fees and expenses, additional costs and disbursements of counsel for the Company and the fees of counsel for the selling shareholders which result from the inclusion of shares held by the Investor and other selling shareholders in such registration, with such additional expenses of the registration being borne by all such selling shareholders pro rata on the basis of the number of shares of Common

stock of such shareholders so registered. In the event some of the securities being registered are or may become convertible into shares of the Company's Common Stock, they will be deemed to have been converted for the purpose of allocating such expenses.

8.7 Underwriting Requirements. In connection with any offering involving an underwriting of shares being issued by the Company, the Company shall not be required under subparagraph 8.2 to include any of the Investor's Shares therein or in the registration unless the Investor accepts the terms of the underwriting as agreed upon between the Company and the underwriters selected by it, and then only in such quantity as would not, in the opinion of the managing underwriter(s), materially adversely affect the distribution of securities by the Company. If the total number of shares of stock which all such selling shareholders of the Company request to be included in such offering exceeds the number of such shares which the managing underwriter(s) reasonably believes would not materially adversely affect the distribution of such securities, the Company shall only be required to include in the offering and in the registration so many of the shares of stock of the selling shareholders as the managing underwriter(s) believes would not materially adversely affect the distribution of such securities (the shares so included to be apportioned pro rata among the selling shareholders according to the total number of shares of Common Stock owned [or which could be acquired by conversion of other securities convertible into Common Stock] by said selling shareholders, or in such other proportions as shall mutually be agreed to by such selling shareholders), provided that no such reduction shall be made with respect to any securities offered by the Company for its own account.

8.8 Delay of Registration. The Investor shall not have any right to take any action to restrain, enjoin or otherwise delay any such registration as the result of any controversy which might arise with respect to the interpretation or implementation of this paragraph 8.

8.9 Indemnification. In the event any of the Shares are included in a Registration Statement under this paragraph 8:

(a) To the extent permitted by law, the Company will indemnify and hold harmless the Investor, any

underwriter (as defined in the Act) for it, and each person, if any, who controls such underwriter within the meaning of Section 15 of the Act, against any losses, claims, damages, costs, expenses or liabilities whatsoever, joint or several, to which they may become subject under the Act or otherwise, insofar as such losses, claims, damages, costs, expenses or liabilities whatsoever (or action in respect thereof) arise out of or are based upon any untrue or alleged untrue statement of any material fact contained in such Registration Statement, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein, or necessary to make the statements therein not misleading; and will reimburse the Investor, such underwriter or controlling person for any legal or other expenses reasonably incurred by them in connection with investigating, preparing or defending any such loss, claim, damage, cost, expense, liability or action; provided, however, that the indemnity agreement contained in this subparagraph 8.9(a) shall not apply to amounts paid in settlement of any such loss, claim, damage, cost, expense, liability or action if such settlement is effected without the consent of the Company (which consent shall not be unreasonably withheld) nor shall the Company be liable in any such case for any such loss, claim, damage, cost, expense, liability or action to the extent that it arises out of or is based upon an untrue statement or alleged untrue statement or omission or alleged omission made in connection with such Registration Statement, preliminary prospectus, final prospectus, or amendments or supplements thereto, in reliance upon and in conformity with written information furnished by the Investor, such underwriter or controlling person expressly for use in such Registration Statement, preliminary prospectus, final prospectus, or amendments or supplements thereto.

(b) To the extent permitted by law, the Investor will indemnify and hold harmless the Company, each of its directors, each of its officers who have signed such Registration Statement, each person, if any, who controls the Company within the meaning of Section 15 of the Act, and any underwriter for the Company (within the meaning of the Act) against any losses, claims, damages, costs, expenses or liabilities whatsoever to which the Company or any such director, officer, controlling person or underwriter may become subject, under the Act or otherwise, insofar as such losses, claims, damages, costs, expenses or liabilities

whatsoever (or actions in respect thereto) arise out of or are based upon any untrue or alleged untrue statement of any material fact contained in such Registration Statement, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto, or arise out of or based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, in each case to the extent, but only to the extent, that such untrue statement or alleged untrue statement or omission or alleged omission was made in such Registration Statement, preliminary prospectus, or amendments or supplements thereto, in reliance upon and in conformity with written information furnished by the Investor expressly for use in such Registration Statement, preliminary prospectus, final prospectus, or amendments or supplements thereto; and the Investor will reimburse any legal or other expenses reasonably incurred by the Company or any such director, officer, controlling person or underwriter in connection with investigating, preparing or defending any such loss, claim, damage, liability or action.

(c) Promptly after receipt by an indemnified party under this subparagraph 8.9 of notice of the commencement of any action, such indemnified party will, if a claim in respect thereof is to be made against an indemnifying party under this subparagraph 8.9, notify the indemnifying party in writing of the commencement thereof and the indemnifying party shall have the right to participate in, and, to the extent the indemnifying party so desires, jointly with any other indemnifying party similarly noticed, to assume the defense thereof with counsel mutually satisfactory to the parties. The failure to notify an indemnifying party promptly of the commencement of any such action, if prejudicial to his ability to defend such action, shall relieve such indemnifying party of any liability to the indemnified party under this subparagraph 8.9 but the omission so to notify the indemnifying party will not relieve him of any liability which he may have to any indemnified party otherwise than under this subparagraph 8.9.

8.10 No-Action Letter; Letter or Opinion of Counsel in Lieu of Registration. If the Company shall have obtained from the Securities and Exchange Commission a "no-action" letter in which the Commission has indicated that it will take no action if the Investor disposes of the Shares covered by any request made under subparagraph 8.1 or 8.2 hereof in

the manner in which it proposes to dispose of the Shares included in such request, or if in the opinion of counsel for the Company, concurred in by counsel for the Investor, which concurrence shall not be unreasonably withheld, no registration under the Act is required in connection with such disposition, the Company need not comply with such request or requests; provided, however, that the Company shall not be so relieved of its obligations under this paragraph 8 unless the aforementioned "no-action" letter or opinion of counsel for the Company shall have been mailed by the Company to the Investor within forty-five (45) days after the Company's receipt of their request or requests.

8.11 Reports Under Securities Exchange Act of 1934. The Company agrees to use its best efforts to register under Section 12(g) of the Securities Exchange Act of 1934, as amended, not later than ninety (90) days after the effective date of the first registration on Form S-1 or any form equivalent thereto covering an underwritten public offering filed by the Company and thereafter (i) to use its best efforts to file with the SEC in a timely manner all reports and other documents required to be filed by an issuer of securities registered under the Securities Exchange Act of 1934, as amended, and (ii) so long as the Investor owns in excess of 25,000 of the Shares (or an equivalent amount of Series A Preferred Stock), to use its best efforts to furnish the Investor upon its request a written statement by the Company that it has complied with the reporting requirements under such rule or regulation, a copy of the most recent annual or quarterly report of the Company and such other reports or documents so filed by the Company as the Investor may reasonably request in order to obtain the benefit of any rule or regulation of the SEC which may permit it to sell securities to the public without registration.

8.12 Transfer of Registration Rights. The registration rights of the Investor under this paragraph 8 may be transferred to any transferee who acquires at least 100,000 of the Shares (or an equivalent amount of Series A Preferred Stock); provided, that the Company is given written notice by the Investor at the time of such transfer stating the name and address of the transferee and identifying the Shares with respect to which the rights under this paragraph 8 are being assigned; provided, further, that the registration rights of the Investor under subparagraph 8.1 may only be transferred to a transferee who is acceptable to the Company, which acceptance shall not be unreasonably withheld.

9. Survival of Warranties. The warranties and representations of the Company contained in or made pursuant to this Agreement shall survive the execution and delivery of this Agreement and the Closing Date hereunder, and the same shall expire and be of no further force or effect upon the expiration of one (1) year from the date hereof (hereinafter referred to as the "expiration date"). Nothing in this paragraph 9 shall, however, be construed to change or extend the date at which such warranties and representations are deemed to have been made to any date other than the date of this Agreement and the Closing Date nor to foreclose any demand, assertion or claim by any party hereto for indemnification in respect of a claimed breach of any warranty or representation if such demand, claim or assertion is made on or before the expiration date pursuant to this Agreement, even though the amount of such demand, assertion or claim cannot be ascertained until after the expiration date.

10. Expenses. Except as provided elsewhere herein, the Company and the Investor will each pay their own expenses (including legal expenses) in connection with the transactions contemplated by this Agreement.

11. Inspection. So long as the Investor holds not less than 10,000 of the Shares (or an equivalent amount of Common Stock), the Company agrees to permit any authorized representatives of the Investor, at such Investor's expense and upon advance notice, to visit and inspect any of the properties of the Company, including its books of account, and to take extracts therefrom, and to discuss its affairs, finances and accounts with its officers, at all such reasonable times and as often as may be reasonably requested; provided, however, that the Company shall not be required at any time to disclose (i) any manufacturing or trade secret or secret process, or any information or data classified by the United States government, or (ii) other data the disclosure of which the Board of Directors of the Company reasonably believes may adversely affect the business of the Company by reason of other investments the Investor may have at the time.

12. Lubrizol's Investment. The Investor has represented to the Company that it is purchasing the Shares hereunder as an investment and not with the intention of acquiring the Company or making the Company a subsidiary of the Investor. Except with respect to the 13,880 shares of Series A Preferred Stock (and/or any Common Stock into which such Series A Preferred Stock is converted) held by INCO

Securities Corporation, the Investor hereby agrees that neither it, nor anyone acting on its behalf, shall solicit the sale of, or offer to buy, any equity securities of the Company from any of the Company's security holders without the prior approval of the Company. In the event the Investor receives any unsolicited offer, the Investor will notify the Company in advance of making any purchase.

13. Representative on the Company's Board of Directors. Effective at the Company's next Annual Meeting of Shareholders, and so long thereafter as the Investor holds not less than 25,000 of the Shares (or an equivalent amount of Common Stock into which Shares have been converted), the Company agrees to use its best efforts to cause and maintain the election to its Board of Directors of a mutually acceptable representative of the Investor.

14. Miscellaneous.

14.1 Agreement is Entire Contract. This Agreement constitutes the entire contract between the parties hereto and no party shall be liable or bound to the other in any manner by any warranties, representations, guaranties or covenants except as specifically set forth herein. The terms and conditions of this Agreement shall inure to the benefit of and be binding upon the respective successors and assigns of the parties hereto (including, without limitation, any wholly-owned subsidiary of the Investor to which the Investor may assign the Shares (or equivalent Common Stock) and its rights under this Agreement). Nothing in this Agreement, express or implied, is intended to confer upon any party, other than the parties hereto, and their respective successors and assigns, any right, remedies, obligations or liabilities under or by reason of this Agreement, except as expressly provided herein.

14.2 Governing Law. This Agreement shall be governed by and construed under the laws of the State of California as applied to contracts between California residents entered into and to be performed entirely within California.

14.3 Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

14.4 Titles and Subtitles. The titles of the paragraphs and subparagraphs of this Agreement are not to be considered in construing this Agreement.

14.5 Notices. Any notice required or permitted hereunder shall be given in writing and shall be deemed effectively given upon personal delivery or upon deposit in the United States Post Office, by registered or certified mail, addressed to a party at its address hereinafter shown below its signature or at such other address as such party may designate by ten (10) days' advance written notice to the other party.

14.6 Amendments and Waivers. Any term of this Agreement may be amended and the observance of any term hereof may be waived (either generally or in a particular instance and either retroactively or prospectively) with the written consent of the Company and the holders of more than 50% of the Shares sold hereunder (and/or Common Stock into which Shares have been converted).

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year hereinabove first written.

GENENTECH, INC.

THE LUBRIZOL CORPORATION

By

Robert A. Swanson

By

Donald L. [Signature]

460 Pt. San Bruno Blvd.

29400 Lakeland Blvd.

South San Francisco, CA 94080 Wickliffe, OH 44092

GENENTECH, INC.
460 POINT SAN BRUNO BOULEVARD
SOUTH SAN FRANCISCO, CALIFORNIA 94080
(415) 952-0123

August 28, 1979

The Lubrizol Corporation
29400 Lakeland Boulevard
Wickliffe, OH 44029

Gentlemen:

In connection with your purchase of 25,000 shares of our Series A Preferred Stock, you have indicated your interest in exploring with us the possibility of cooperative efforts in the development and manufacture, through the use of our technology, of products and/or processes in the field of industrial chemicals. We are similarly interested in such a joint effort. As a result, we are willing to agree with you as follows, so long as you own, or any wholly-owned subsidiary of yours owns, your 25,000 shares of Series A Preferred Stock (or an equivalent amount of Common Stock issued upon conversion thereof):

1. We will meet and discuss with your representatives the possible application of our technology to the development and manufacture of industrial chemicals in which you are interested. Our purpose would be to identify several industrial chemicals on which we can collaborate. Such collaboration would take place pursuant to written agreements mutually acceptable to both parties and would be upon terms substantially similar to those we enter into with our other customers.
2. Furthermore, in situations in which we have developed a product or process in the field of industrial chemicals on our own, and not under contract with any customer, and we decide to contract with a customer for its manufacture and/or marketing rather than manufacturing or marketing it on our own, we will contact you to determine your interest in the project and, if you are interested, will negotiate in good faith with you in an attempt to arrive at a mutually acceptable commercial arrangement, prior to negotiating an agreement with any third party.

The Lubrizol Corporation
August 28, 1979
Page Two

3. Neither of the preceding two paragraphs shall be interpreted to place any restraint on:

(a) Genentech's ability to develop on its own, or under contract with a customer, any product or process in the field of industrial chemicals; and/or

(b) Genentech's ability to develop, manufacture and/or market any product or process outside the field of industrial chemicals.

You agree to respect the confidentiality of any information you may learn from us as a result of our discussions pursuant to this agreement including, without limitation, anything you may learn with respect to the plans, intentions, products and processes of our other customers.

If you are in agreement with the foregoing, please so indicate by executing this letter in the space provided below.

Sincerely,

Robert A. Swanson

Robert A. Swanson
President

Accepted and agreed to:

THE LUBRIZOL CORPORATION

By *[Signature]*
Title *Asst. to the President*

RECEIVED

SEP 17 1979

LFB

BANK OF AMERICA

SAN ANTONIO BRANCH

September 13, 1979

Fred Middleton
Vice President-Finance
Genentech, Inc.
Point San Bruno Blvd,
South San Francisco, CA 94080

Dear Fred,

This will confirm that we received today for Genentech's account a wire for \$10,000,000, from Bank of America of New York, by order of Lubrizol Corporation.

Enclosed is the duplicate deposit slip for your records.

Sincerely,



Shirley Liu Clayton
Assistant Vice President

cc: Cooley Godward et al,
Attn: Lee Benton
1 Maritime Plaza
San Francisco, CA 94111

448 | 29 - 110

BRANCH NO. ACCOUNT NO.

Cementech

NAME

b/o Lubrizol

ADDRESS

CITY

STATE

9-13

DATE

SIGN HERE FOR LESS CASH

BANK OF AMERICA
 NATIONAL TRUST AND SAVINGS ASSOCIATION

1ST CHECKS BY BANK NUMBER	DOLLARS				CENTS
CURRENCY					
COIN					
CHECKS					
1					
2					
3					
4					
SUB-TOTAL					
LESS CASH RECEIVED					
TOTAL DEPOSIT					

For more than
four checks, list
all checks on
reverse and enter
total here.

10,000,000.00

⑆5100⑈0035⑆



Fred Middleton and Herbert Boyer take a break for a beer and a cigar at the outside cafe in the Baur au Lac Hotel in Zurich, Switzerland in September 1980 during Genentech's IPO investor roadshow tour of Europe.

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

AMENDMENT NO. 2

to

Form S-1

REGISTRATION STATEMENT
Under
THE SECURITIES ACT OF 1933

GENENTECH, INC.
(Exact name of registrant as specified in charter)

460 Point San Bruno Boulevard
South San Francisco, California 94080
(415) 952-0123
(Address of principal executive offices)

FRED A. MIDDLETON
Vice President—Finance & Administration
GENENTECH, INC.
460 Point San Bruno Boulevard
South San Francisco, California 94080
(415) 952-0123
(Name and address of agent for service)

Copy to:

LEE F. BENTON, ESQ.
COOLEY, GODWARD, CASTRO,
HUDDLESON & TATUM
One Maritime Plaza, 20th Floor
San Francisco, California 94111
(415) 981-5252

BRUCE ALAN MANN, ESQ.
PILLSBURY, MADISON & SUTRO
P.O. Box 7880
San Francisco, California 94120
(415) 983-1061

Approximate date of commencement of proposed sale to the public:
As soon as possible after this Registration Statement becomes effective.

This Registration Statement shall hereafter become effective in accordance with the provisions Section 8(a) of the Securities Act of 1933.

103
GENENTECH, INC.

Cross-Reference Sheet

<u>Item Number and Heading</u>	<u>Prospectus Heading</u>
1. Distribution Spread	Cover Page — —
2. Plan of Distribution	Cover Page; Underwriting
3. Use of Proceeds to Registrant	Use of Proceeds
4. Sales Otherwise than for Cash	Inapplicable
5. Capital Structure	Capitalization
6. Summary of Operations	Statement of Operations
7. Organization of Registrant	The Company
8. Parents of Registrant	Certain Shareholders
9. Description of Business	The Company; Business; Use of Proceeds
10. Properties	Business—Properties
11. Organization Within 5 Years	Certain Transactions
12. Legal Proceedings	Inapplicable
13. Capital Stock Being Registered	Description of Capital Stock —Common Stock
14. Long-Term Debt Being Registered	Inapplicable
15. Other Securities Being Registered	Inapplicable
16. Directors and Executive Officers	Management
17. Management Remuneration and Transactions	Management—Remuneration; Certain Transactions; Certain Shareholders
18. Security Ownership of Certain Beneficial Holders and Management	Certain Shareholders
19. Financial Statements	Financial Statements
20. Brokerage Allocation	Inapplicable

PRELIMINARY PROSPECTUS DATED OCTOBER 14, 1980

Genentech, Inc.
 Genentech, Inc.
 Genentech, Inc.
Genentech, Inc.
 Genentech, Inc.

**1,000,000 SHARES
 COMMON STOCK**

All the shares of Common Stock offered hereby are being sold by Genentech, Inc. (the "Company" or "Genentech").

Prior to this offering, there has been no public market for the Common Stock of the Company. See "Underwriting" for information relating to the method of determining the initial public offering price.

The Common Stock offered hereby involves a **HIGH DEGREE OF RISK**. See "Risk Factors" for information with respect to the Company's short operating history, uncertainty of financial results and capital needs and other risk factors.

**THESE SECURITIES HAVE NOT BEEN APPROVED OR DISAPPROVED BY THE
 SECURITIES AND EXCHANGE COMMISSION NOR HAS THE COMMISSION
 PASSED UPON THE ACCURACY OR ADEQUACY OF THIS PROSPECTUS.
 ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.**

	Price to Public	Underwriting Discounts (1)	Proceeds to Company (2)
Per Share	\$35.00	\$2.25	\$32.75
Total Minimum	\$35,000,000	\$2,250,000	\$32,750,000
Total Maximum (3)	\$38,500,000	\$2,475,000	\$36,025,000

(1) See "Underwriting" for information relating to indemnification of the Underwriters, shares reserved for sale to certain persons and other matters.

(2) Before deducting expenses payable by the Company estimated at \$435,000.

(3) Assuming full exercise of the 30-day option granted by the Company to the Underwriters to purchase, on the same terms, up to an additional 100,000 shares to cover any over-allotments. See "Underwriting."

The shares are offered by the several Underwriters when, as and if issued by the Company and accepted by the Underwriters and subject to their right to reject orders in whole or in part. It is expected that delivery of the shares will be made on or about October 21, 1980.

BLYTH EASTMAN PAINE WEBBER
 INCORPORATED

HAMBRECHT & QUIST

The date of this Prospectus is October 14, 1980

A registration statement relating to these securities has been filed with the Securities and Exchange Commission but has not yet become effective. Information contained herein is subject to completion or amendment. These securities may not be sold nor may offers to buy be accepted prior to the time the registration statement becomes effective. This prospectus shall not constitute an offer to sell or the solicitation of an offer to buy nor shall there be any sale of these securities in any State in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such State.

PROSPECTUS SUMMARY

The information below should be read in conjunction with the detailed information and financial statements appearing elsewhere in this Prospectus.

The Company

Genentech, Inc. develops and produces products with commercial potential using genetically engineered microorganisms created by means of recombinant DNA technology or "gene splicing." Since inception in 1976, Genentech has applied genetic engineering techniques developed by it and others to produce a variety of important health care products, including human insulin, human growth hormone and human interferon. Other applications of the Company's technology under development include the industrial and agricultural fields.

The Offering

Common Stock offered by the Company	1,000,000 Shares(1)
Common Stock outstanding after the offering ..	7,472,102 Shares(1)
Use of Proceeds	For capital expenditures and to increase working capital for product research and development and clinical programs.
Proposed NASDAQ symbol	GENE

(1) Does not include up to 100,000 shares which may be sold to the Underwriters to cover over-allotments.

Risk Factors

See "Risk Factors" with respect to the reasons why purchase of the securities offered hereby is speculative and should be carefully considered, including the Company's short operating history, uncertainty of financial results and capital needs and other factors. See "Shares Eligible for Future Sale" for the possible adverse impact on the market for the Common Stock of shares available for sale after the offering, and see "Dilution" for the immediate dilution in net tangible book value per share to be incurred by new investors.

IN CONNECTION WITH THIS OFFERING, THE UNDERWRITERS MAY OVER-ALLOT OR EFFECT TRANSACTIONS WHICH STABILIZE OR MAINTAIN THE MARKET PRICE OF THE COMMON STOCK OF THE COMPANY AT A LEVEL ABOVE THAT WHICH MIGHT OTHERWISE PREVAIL IN THE OPEN MARKET. SUCH STABILIZING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME.

PROSPECTUS SUMMARY—(Continued)
Selected Financial Information

	April 7, 1976 to December 31, 1976	Year Ended December 31,			Six Months Ended June 30,	
		1977	1978	1979	1979 (Unaudited)	1980
Revenues	\$ 1,171	\$ 26,335	\$ 856,335	\$3,405,804	\$1,190,600	\$3,461,330
Income (loss) before extraor- dinary item	(88,601)	(426,481)	(373,286)	81,536	6,069	51,802
Extraordinary item(1)	—	—	—	34,800	2,500	29,000
Net income (loss) ..	<u>\$(88,601)</u>	<u>\$(426,481)</u>	<u>\$(373,286)</u>	<u>\$ 116,336</u>	<u>\$ 8,569</u>	<u>\$ 80,802</u>
Earnings (loss) per common share and common equiv- alent share(2):						
Income (loss) before ex- traordinary item	\$(.04)	\$(.17)	\$(.14)	\$.01	\$ —	\$.01
Extraordinary item	—	—	—	\$.01	—	—
Net income (loss) ..	<u>\$(.04)</u>	<u>\$(.17)</u>	<u>\$(.14)</u>	<u>\$.02</u>	<u>\$ —</u>	<u>\$.01</u>
					June 30, 1980	
				Actual	As Adjusted(3)	
Working Capital				\$ 9,520,736	\$41,835,736	
Total Assets				14,173,296	46,488,296	
Total Long-Term Obligations				56,212	56,212	
Shareholders' Equity				11,257,075	43,572,075	

(1) Income tax reduction from carryforward of prior years' losses.

(2) See Note (d) of Notes to Statement of Operations.

(3) Adjusted to reflect completion of the offering (assuming non-exercise of the Underwriters' over-allotment option), but not application of proceeds for planned capital expenditures. (See "Use of Proceeds.")

THE COMPANY

Genentech, Inc. develops and produces products with commercial potential using genetically engineered microorganisms created by means of recombinant DNA technology or "gene splicing." Since inception in 1976, the Company has applied genetic engineering techniques developed by it and others to produce a variety of important health care products, including human insulin, human growth hormone and human interferon. Other applications of Genentech's technology under development include the industrial and agricultural fields.

Genentech believes recombinant DNA and related technologies will make possible the production of many new and valuable products, and will provide significant commercial advantages over current methods of production for existing products. From its inception, Genentech's strategy has been to develop an organization capable of developing, manufacturing and marketing its present and future products.

The Company has entered into a number of long-term commercial arrangements with major corporations under which the Company develops specific products. These agreements provide for a variety of manufacturing and marketing arrangements. The Company expects to derive revenues from these arrangements and also expects to derive a substantial portion of its future revenues from direct Company sales of independently developed products to end users.

Genentech was incorporated in California on April 7, 1976. Its principal offices, laboratories and manufacturing facilities are located at 460 Point San Bruno Boulevard, South San Francisco, California 94080, and its telephone number is (415) 952-0123.

RISK FACTORS

The following factors should be carefully considered in evaluating the Company and its business before purchasing the shares offered by this Prospectus:

1. *Early Development Stage of the Company.* The Company was organized in April 1976 and announced the development of its first product using recombinant DNA technology in 1977. Although the Company expects to receive most of its long-term revenues from direct product sales and royalty income, its revenues to date have been limited to payments under product development contracts, interest and other income. Substantially all contract revenues to date have been received under contracts providing for fixed and benchmark payments which continue only until the end of the development period, after which payments are dependent on sales of the products developed. Until the Company or its contract customers have received required government approvals and have successfully marketed these products, which may not occur until a number of years after successful completion of product development, the Company may be unable to fund its operating expenses solely from revenues received under these contracts and from other sources. Thus, the Company's ability to finance its operations without borrowing money or selling additional securities, as well as its future profitability, will depend on the success of the Company in developing products which can be manufactured and sold on a profitable basis by the Company itself or by its contract customers. Although the Company is currently providing product to contract customers, no product sales have yet been made to end users. At June 30, 1980 the Company had an accumulated deficit of approximately \$691,000, and it is possible that additional losses may occur in the future. (See "Business.")

2. *Uncertainty of Financial Results and Capital Needs.* Because the receipt and timing of a significant portion of the payments under the Company's product development contracts are tied to the achievement of performance "benchmarks," which cannot be predicted with certainty, there may be substantial fluctuations in the Company's revenues and profitability on a quarterly basis. Furthermore, in addition to expending substantial funds in its on-going product research and development programs, Genentech expects to expend substantial sums in the near future in pursuit of regulatory clearances. Substantial expenditures will also be made in continuing to build the Company's manufacturing and marketing capabilities. There can be no assurance that the Company will derive sufficient revenues from current sources to fund these expenditures.

3. *Regulation by Government Agencies.* The Company and its contract customers plan to manufacture and sell many products which require regulatory approval. In particular, the Company's health care products are subject to approval, prior to marketing, by the Food and Drug Administration ("FDA") in the United States and comparable agencies in foreign countries. The process of obtaining FDA and corresponding foreign approvals can be costly and time consuming, and there can be no assurance that such approval will be granted to the Company or its contract customers. The Company has adopted a policy of voluntary compliance with guidelines promulgated by the National Institutes of Health ("NIH") covering the conduct of recombinant DNA activities. Pursuant to this policy, the Company seeks the approval of the NIH prior to scaled-up manufacture of its products. To date, the Company has received NIH approval for scaled-up manufacture of all of its announced products, but there can be no assurance as to the future availability of such approval. The extent of adverse government regulation which might arise from future legislative or administrative action is not currently known. (See "Business—Government Regulation.")

4. *Proprietary Technology.* The Company has filed applications for a large number of U.S. and foreign patents based on inventions made in the pursuit of developing its technology. The Company expects to be issued patents in the future, although there can be no assurance as to the breadth or the degree of protection which these patents, if issued, will afford the Company. In addition to the Company, universities and other public and private concerns have filed patent applications and may be issued patents on inventions or otherwise possess proprietary rights to technology useful to the Company. The extent to which the Company may be required to license such patents or other proprietary rights, and the cost and availability of such licenses, are presently unknown. In addition, the Company intends to rely to an extent on unpatented proprietary knowhow. However, there can be no assurance that others will not independently develop such knowhow or otherwise obtain access to the Company's knowhow or plasmids or microorganisms embodying that knowhow. (See "Business—Proprietary Technology—Patents and Trade Secrets.")

5. *Competition.* The Company was the first to demonstrate the use of recombinant DNA technology to produce a product with commercial potential, and believes it is currently a leader in the commercial application of the technology. However, the Company expects competition to become more intense in the future. Many large pharmaceutical and chemical companies have announced their entry into the field, and with their extensive research and development, marketing, financial and human resources they are capable of providing significant long-term competition. Large pharmaceutical companies have had significantly greater experience than the Company in undertaking clinical programs for obtaining FDA approval and in the marketing of their products. In addition, a number of other companies have entered the field, and more may be expected to do so in the future. As a result, the Company expects competition to become more intense in the development of new

products, exploitation of markets and recruiting of scientific, technical and managerial personnel. (See "Business—Competition.")

6. *Technological Change.* Technological developments are expected to continue at a rapid pace in the Company's industry. Although the Company has announced the development of more products using recombinant DNA technology than any other company, the successful development of the Company's products will be dependent upon its ability to continue on the leading edge of this technology and its ability to attract and retain scientific and technical personnel.

7. *Possible Volatility of Share Price.* Because of the foregoing factors, the market price of the Company's Common Stock may be highly volatile. Announcement of new product developments by the Company or its competitors, third party claims, irrespective of their merit, to rights in the Company's technology or future public concern as to the commercial feasibility or safety of recombinant DNA technology may have a significant impact on the market price of the Company's shares.

SHARES ELIGIBLE FOR FUTURE SALE

Beginning 90 days after the date of this Prospectus, shareholders holding approximately 3,400,000 shares of Common Stock may be eligible to sell shares in the public market pursuant to Rule 144 under the Securities Act of 1933. In general, under Rule 144 a person (or persons whose shares are aggregated) who has beneficially owned his or her shares for at least two years, including persons who may be deemed "affiliates" of the Company as the term "affiliate" is defined under the Act, would be entitled to sell within any three-month period a number of shares that does not exceed the greater of 1% of the outstanding shares of the Company's Common Stock (approximately 74,700 shares based on 7,472,102 shares to be outstanding after the offering, assuming the non-exercise of the Underwriters' over-allotment option) or the average weekly trading volume in the over-the-counter market during the four calendar weeks preceding such sale. A person (or persons whose shares are aggregated) who is not deemed an "affiliate" of the Company and who has beneficially owned his or her shares for at least three years would be entitled to sell such shares under Rule 144 without regard to the volume limitations described above. In addition, as of the date of this Prospectus shareholders holding approximately 1,250,000 shares of Common Stock may be eligible to sell such shares in the public market without regard to the restrictions imposed by Rule 144. The holders of approximately 1,220,000 of these shares have agreed not to sell shares in the public market until 90 days after the date of this Prospectus without the consent of the Underwriters. (See "Description of Capital Stock—Outstanding Registration Rights" for a discussion of registration rights of certain holders of the Company's Common Stock.)

Prior to this offering there has been no market for the Common Stock of the Company and no precise predictions can be made as to the effect, if any, that market sales of shares or the availability of shares for sale will have on the market price prevailing from time to time. Nevertheless, sales of substantial amounts of the Common Stock of the Company in the public market could adversely impact prevailing market prices.

DILUTION

As of June 30, 1980, the net tangible book value of the Company's Common Stock was \$11,156,433, or \$1.72 per share. Giving effect to the offering at a public offering price of \$35.00 per share, the pro forma net tangible book value of the Company at June 30, 1980 would have been \$43,471,433, or \$5.82 per share of Common Stock, representing an immediate increase in net tangible book value

of \$4.10 per share to present holders of Common Stock and an immediate dilution of \$29.18 per share to new investors. The following table illustrates this per share dilution:

Public offering price(1)	\$35.00	--
Net tangible book value of Common Stock, before offering(2)	\$1.72	
Increase attributable to payments by new investors	<u>4.10</u>	
Net tangible book value of Common Stock, after offering ..		<u>5.82</u>
Dilution to new investors(3)		<u>\$29.18</u>

(1) Offering price before deduction of underwriting discounts and offering expenses.

(2) Net tangible book value per share of Common Stock is determined by dividing the number of shares of Common Stock outstanding into the tangible net worth of the Company (tangible assets less liabilities) allocable to the Company's Common Stock upon liquidation. No net tangible book value has been allocated to the Series B Restricted Stock because the Common Stock is entitled to a liquidation preference of at least \$10 per share, which at June 30, 1980 exceeded the total net tangible book value of the Company. Giving effect to conversion of the 201,750 shares of Series B Restricted Stock outstanding on September 30, 1980, the net tangible book value of the Company's Common Stock on June 30, 1980 would have been \$1.67 per share and the dilution to new investors would have been \$29.33 per share.

(3) "Dilution" is determined by subtracting net tangible book value per share after the offering from the amount of cash paid by a new investor for a share of Common Stock.

The following table summarizes the difference between the number of shares of Common Stock purchased from the Company, the total consideration paid and the average price per share paid by the investors purchasing new shares and by existing shareholders:

	Shares Purchased	Percent of Total Shares of Common Stock	Consideration	Percent of Total Consideration	Average Price Per Share of Common Stock
New investors	1,000,000	13.4%	\$35,000,000	74.5%	\$35.00
Existing shareholders	6,472,102	86.6	11,987,133	25.5%	\$ 1.85
Total	<u>7,472,102</u>	<u>100.0%</u>	<u>\$46,987,133</u>	<u>100.0%</u>	<u>\$ 6.29</u>

The above computations assume no exercise of the Underwriters' over-allotment option.

The 7,472,102 shares of Common Stock which will be outstanding upon the completion of the offering may be increased by conversion of all outstanding shares of Series B Restricted Stock upon the happening of any of the conversion events specified therein. (See "Description of Capital Stock—Series B Restricted Stock.") As of September 30, 1980 there were 201,750 shares of Series B Restricted Stock outstanding. Assuming the conversion of all such Series B Restricted Stock, which was originally issued for an aggregate price of \$256,500 (an average of \$1.27 per share), the number of outstanding shares of Common Stock would be increased to 7,673,852. Thus, the 1,000,000 shares of Common Stock offered hereby would represent approximately 13.0% of such outstanding Common Stock with an aggregate cost of \$35,000,000, or \$35.00 per share, while the remaining shares would represent approximately 87.0% of such outstanding Common Stock with an aggregate cost of \$12,243,633, or \$1.83 per share.

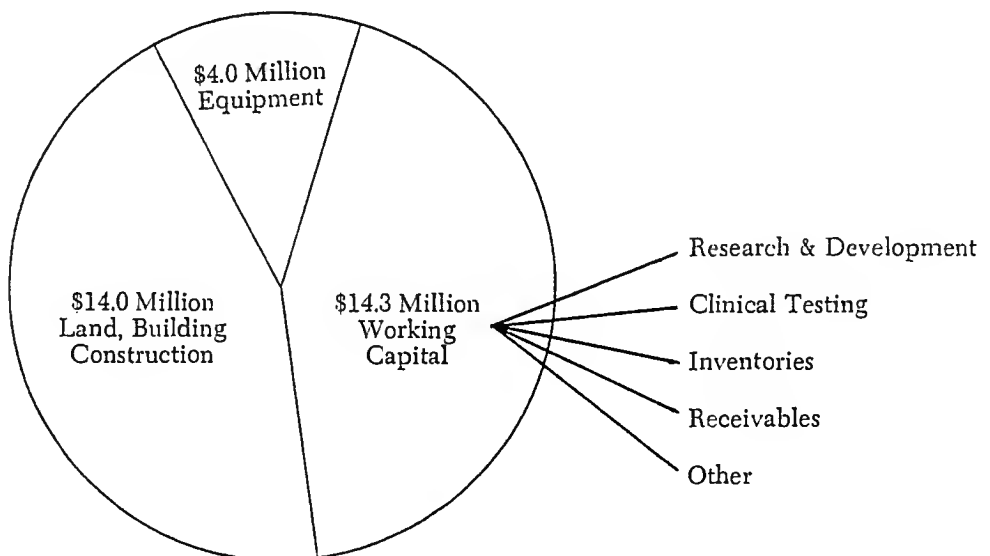
See "Management—Employee Stock Plan" for a description of the Company's Employee Stock Plan, under which the Company has reserved 400,000 shares of Common Stock for issuance to employees of the Company, which issuances may involve additional dilution to holders of Common Stock.

USE OF PROCEEDS

The net proceeds from the sale of 1,000,000 shares of Common Stock by the Company are estimated at \$32,315,000 (\$35,590,000 if the Underwriters' over-allotment option is exercised in full). Of such net proceeds, approximately \$18 million will be used for the Company's capital expenditure programs. The Company presently intends to acquire and develop facilities having a cost of approximately \$14 million and to acquire equipment having a cost of approximately \$4 million in the next 18 months. The remainder of the net proceeds of the offering (approximately \$14,315,000), as well as the Company's current resources of approximately \$10 million, will be used as working capital. Uses of working capital will include product research and development which the Company undertakes on its own behalf (see "Business—Research and Development"), clinical testing programs (see "Business—Clinical Programs") and the financing of inventories and receivables as the Company's manufacturing and marketing activities develop. Because neither the cost nor timing of future research and development and clinical programs nor the extent to which such programs may ultimately be funded by the Company's current and future contract customers has been finalized, the Company has not allocated working capital among the various components identified above.

Other methods of financing the Company's capital expenditures, including mortgage or lease financing, may be utilized if available to the Company at an attractive cost. In the past, the Company has made a practice of using lease financing for equipment purchases (see Note 3 of Notes to Financial Statements) and may continue to do so in the future. To the extent such financing is used, proceeds will be reallocated from capital expenditures to working capital. It is anticipated that the proceeds from the offering, together with the Company's present resources, will satisfy the Company's cash requirements for at least the next 18 months. Because of the funding alternatives available to the Company, it is not possible to predict with certainty the date by which the proceeds will be utilized. Pending such uses the proceeds will be invested in short-term investments.

The following chart illustrates the anticipated uses of the net proceeds of the offering:



DIVIDENDS AND DIVIDEND RESTRICTIONS

The Company has never paid a dividend on its Common Stock and it currently intends to retain all earnings for use in its business. Accordingly, it is anticipated that dividends will not be paid to holders of Common Stock in the foreseeable future. In addition, under its current lease lines with B.A. Leasing Corporation, an affiliate of Bank of America N.T. & S.A., the Company may not pay any cash dividends without the prior consent of B.A. Leasing Corporation. (See Note 3 of Notes to Financial Statements.)

CAPITALIZATION

The following presentation sets forth the capitalization of the Company as of June 30, 1980, and at that date giving effect to the sale of the Common Stock offered hereby (assuming non-exercise of the Underwriters' over-allotment option):

	Outstanding	Giving Effect to the Offering
Current portion of lease-purchase obligations(1)	\$ 20,885	\$ 20,885
Long-term portion of lease-purchase obligations(1)	\$ 56,212	\$ 56,212
Shareholders' Equity:		
Preferred Stock, \$.02 par value, 2,000,000 shares authorized, no shares outstanding	—	—
Common Stock, \$.02 par value, 18,000,000 shares authorized, 6,472,102 shares outstanding, 7,472,102 shares outstanding after the offering(2)	129,442	149,442
Series B Restricted Stock, \$.02 par value, 2,000,000 shares authorized, 152,000 shares outstanding(3)	3,040	3,040
Capital in excess of par value	11,974,889	44,269,889
Notes receivable from sale of stock	(159,066)	(159,066)
Deficit	(691,230)	(691,230)
Total Shareholders' Equity	<u>11,257,075</u>	<u>43,572,075</u>
Total Capitalization	<u>\$11,313,287</u>	<u>\$43,628,287</u>

(1) See Note 2 of Notes to Financial Statements for a description of the Company's obligations under lease-purchase agreements.

(2) Does not include 400,000 shares reserved for issuance under the Company's Employee Stock Plan, which was adopted by the Board of Directors and shareholders in August 1980.

(3) Excludes 248,000 additional shares reserved for issuance under the Company's Series B Restricted Stock Purchase Plan. Of the 248,000 reserved shares, 49,750 shares have been issued subsequent to June 30, 1980.

See "Business—Properties" and Notes 2 and 3 of Notes to Financial Statements for a description of the Company's obligations under leases.

GENENTECH, INC.

STATEMENT OF OPERATIONS

The following statement of operations for the period from April 7, 1976 (date of incorporation) through December 31, 1976, and for each of the three years in the period ended December 31, 1979 and for the six-month period ended June 30, 1980 has been examined by Arthur Young & Company, certified public accountants, whose report with respect thereto appears elsewhere in this Prospectus. The information for the six months ended June 30, 1979 is unaudited but includes all adjustments (consisting only of normal recurring accruals) which the Company considers necessary for a fair presentation of the results of operations for that period. The information for the six-month period ended June 30, 1980 is not necessarily indicative of the operating results for the entire year. This statement should be read in conjunction with other financial statements and notes thereto appearing elsewhere herein.

	Period from April 7, 1976 (date of incor- poration) to December 31, 1976	Year Ended December 31,			Six Months Ended June 30,	
		1977	1978	1979	1979 (Unaudited)	1980
Revenues:						
Contracts(a)	\$ —	\$ —	\$ 796,500	\$2,581,600	\$1,142,054	\$2,692,630
Interest	1,171	26,335	56,598	524,204	48,546	768,700
Other(b)	—	—	3,237	300,000	—	—
Total revenues	1,171	26,335	856,335	3,405,804	1,190,600	3,461,330
Costs and expenses, principally research and development costs(a)(c)	89,772	452,816	1,229,621	3,277,968	1,181,181	3,372,528
Income (loss) before taxes and extraordinary item	(88,601)	(426,481)	(373,286)	127,836	9,419	88,802
Provision for income taxes(a) . .	—	—	—	46,300	3,350	37,000
Income (loss) before extraordi- nary item	(88,601)	(426,481)	(373,286)	81,536	6,069	51,802
Extraordinary item—benefits de- rived from utilization of oper- ating loss carryforward	—	—	—	34,800	2,500	29,000
Net income (loss)	<u>\$(88,601)</u>	<u>\$(426,481)</u>	<u>\$(373,286)</u>	<u>\$ 116,336</u>	<u>\$ 8,569</u>	<u>\$ 80,802</u>
Earnings (loss) per common share and common equiva- lent share:(d)						
Income (loss) before extraor- dinary item	\$(.04)	\$(.17)	\$(.14)	\$.01	\$ —	\$.01
Extraordinary item	—	—	—	.01	—	—
Net income (loss)	<u>\$(.04)</u>	<u>\$(.17)</u>	<u>\$(.14)</u>	<u>\$.02</u>	<u>\$ —</u>	<u>\$.01</u>
Weighted average number of shares used in computing earn- ings (loss) per common and common equivalent share	<u>2,176,000</u>	<u>2,482,520</u>	<u>2,624,332</u>	<u>5,767,574</u>	<u>5,425,365</u>	<u>6,489,321</u>

See accompanying notes.

NOTES TO STATEMENT OF OPERATIONS

(Information for the six-month period ended June 30, 1979 is unaudited)

(a) See Note 1 of Notes to Financial Statements for summary of significant accounting policies; Note 4 for a discussion of contract revenues; and Note 6 for the provision for income taxes. — —

Genentech is engaged in the development of microorganisms capable of producing products with commercial potential and the eventual production and sale of such products. To date, the principal activity and source of revenue has been research and product development pursuant to contracts with customers.

(b) Other income in 1979 consisted of a \$300,000 one-time payment to the Company in return for a release of certain claims to a small equity interest in, in exchange for information and assistance in connection with the formation of, Biogen S.A., a non-affiliated concern. (See "Certain Transactions.")

(c) In 1980, a payment of \$350,000 was made to the Regents of the University of California in connection with a restructuring of the Company's obligations arising from funded research. (See "Business—Research and Development.")

(d) Earnings (loss) per common share (and, in 1979, common equivalent share) calculations are based on the weighted average number of shares outstanding. The Series B Restricted Stock is not included as a common stock equivalent for purposes of such calculations because such stock is only contingently convertible into Common Stock. The calculations included 2,746,508 equivalent shares for convertible preferred stock in the year ended December 31, 1979 and 2,454,840 such shares in the six-month period ended June 30, 1979. Common shares for conversion of preferred shares were not included in the loss per share calculations for the period from April 7, 1976 (date of incorporation) to December 31, 1976 and for the years ended December 31, 1977 and 1978 since their inclusion would have been anti-dilutive.

Per share amounts give effect to a ten-for-one common stock split in March 1978 and a four-for-one common stock conversion in January 1980.

The Company has paid no dividends.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF THE STATEMENT OF OPERATIONS

General

Due to its rapid growth, the Company has undergone significant changes from inception in 1976 through June 30, 1980.

Contract revenues were first received in 1978. In each subsequent period, contract revenues have increased due to the addition of new contracts and achievement of contract benchmarks which generate additional payments.

Although revenues from all sources exceeded expenses during 1979 and the first six months of 1980, the Company had an accumulated deficit of approximately \$691,000 at June 30, 1980.

To date, the Company has not received revenues from product sales and therefore no cost of goods sold has been recorded. Increases in each period in costs and expenses, principally research and development, are attributable to three key factors: an increase in the number of employees, an increase in the volume of research supplies purchased and an expansion of the Company's facilities.

Six Months Ended June 30, 1980 Compared to Six Months Ended June 30, 1979

Contract revenues increased approximately \$1.6 million (136%) in the first six months of 1980 (under seven contracts) over the comparable period of 1979 (under four contracts) due to achievement of certain contract benchmarks and an increase in periodic payments recognized as revenue under development contracts.

Interest income increased approximately \$720,000 (1483%) in the first six months of 1980 over the comparable period of 1979 because of an increase in cash and short-term investments resulting from a sale of stock in September 1979 and high interest rates during early 1980.

Costs and expenses increased approximately \$2.2 million (186%) in the first six months of 1980 compared with the first six months of 1979 principally because of expansion of the Company's work force, an increase in the number of research and development projects undertaken, expansion of leased work space and additions to equipment operating leases. Costs and expenses in the first six months of 1980 included a \$350,000 payment to the Regents of the University of California in connection with a restructuring of the Company's obligations arising from funded research. (See "Business—Research and Development.")

1979 Compared to 1978

Contract revenues for 1979 (under six contracts) increased approximately \$1.8 million (224%) over 1978 (under three contracts). Increases in contract revenues resulted from increases in benchmark and periodic payments under contracts with certain new and existing customers.

Interest income increased approximately \$468,000 (826%) in 1979 over 1978 due to an increase in cash from a sale of stock in September 1979 and increased contract revenues. In 1979, other revenues consisted of a \$300,000 one-time payment to the Company in return for a release of certain claims to a small equity interest in, in exchange for information and assistance in connection with the formation of, Biogen S.A., a non-affiliated concern. (See "Certain Transactions.")

Costs and expenses increased by approximately \$2 million (167%) due principally to an increase in the number of employees, an increase in the volume of research supplies purchased and an expansion of facilities.

1978 Compared to 1977

The Company did not receive any contract payments in 1977; in 1978, the Company recognized revenue under three development contracts.

Costs and expenses increased by approximately \$775,000 (172%) in 1978 over 1977 due primarily to an expansion in the Company's work force, an increase in the number of research and development projects undertaken and increases in expenses relating to facilities expansion.

Genentech was formed in April 1976 upon the premise that advances in recombinant DNA, gene synthesis and molecular biology made possible the development of a new technology which could produce a wide variety of valuable substances with health care, industrial, agricultural and other applications. The Company was the first to demonstrate, using recombinant DNA technology, the genetic engineering of microorganisms which can make products with commercial potential. In 1977 the Company successfully demonstrated the microbial production of the brain hormone somatostatin.

Genentech believes recombinant DNA technology will make possible the production of many new products, as well as result in significant commercial advantages over current methods of production of existing products. In particular cases, the advantages over current methods of production may include the ability to produce substantially unlimited quantities of products which are currently in short supply, medically useful substances which are essentially identical in composition to those produced by the human body, products at a substantially reduced cost over current methods of production, medical products which are safer than those presently available, and products utilizing raw material sources which may be more plentiful and less expensive than those presently used.

The Company's initial product development strategy has been targeted toward developing those products which capitalize on the advantages of gene splicing technology over current methods of production. Genentech has selected the health care field as the initial thrust of its product development strategy because it offers the opportunity to pursue valuable products which are biologically active in relatively small quantities. The selection of the Company's initial health care products was based on such factors as existence of established markets, technical feasibility, relative cost of product development, market potential, availability of competitive products, ease of market penetration and prospects for relatively prompt regulatory approvals. Genentech has engineered microorganisms to produce a number of medically important proteins: somatostatin (in 1977), human insulin (in 1978), human growth hormone (in 1979), thymosin alpha-1 (in 1979), human proinsulin (in 1980), human leukocyte interferon (in 1980) and human fibroblast interferon (in 1980). (See "Products.") The Company's development program also includes applications in agricultural and industrial markets.

At present, Genentech or its licensees are producing human insulin, human growth hormone, thymosin alpha-1 and human interferon in sufficient quantities for on-going preclinical animal testing programs and, in the case of human insulin, human clinical trials. Clinical programs are necessary for these products as they may not be marketed prior to completion of human clinical trials and receipt of required regulatory approvals. (See "Clinical Programs" and "Government Regulation.")

Technology—Background

The cell is the biological unit of life. The simplest organism consists of a single cell which reproduces itself by dividing. Each cell is complete with its own system of biochemical reactions for maintenance of its life processes.

All cells contain DNA (deoxyribonucleic acid), a complex molecule containing all of the information necessary to govern a cell's biological processes. The information content of DNA is derived from the sequential arrangement of four types of chemical building blocks. The information contained in these sequences of building blocks is translated into biochemical products through the

"genetic code." Thus, DNA acts as a kind of computer tape which is "read" by the cell's biological machinery to direct its operation. Short sections of DNA which direct a specific function are called "genes" and each gene codes for the production of a specific protein, enzyme, hormone or other complex chemical required for a cell's biological processes.

In addition to providing a "blueprint" for the cell's functions, DNA has the capacity to duplicate itself so that when the cell divides, each resulting cell will be a copy of the original and will perform identical biological functions. Single-celled microorganisms such as those used by the Company can reproduce themselves every 20 to 30 minutes.

Science has recently progressed to the point at which scientists are able to manipulate DNA successfully for research or commercial purposes. Advances which led to this level of progress have included key developments involving the ability to synthesize DNA with organic chemistry techniques, the ability to determine the sequences of DNA, the deciphering of the "genetic code" and the development of "gene splicing" techniques. "Gene splicing" involves the enzymatic cutting and assembly at the molecular level of DNA fragments from different sources into a larger fragment capable of being introduced into a microorganism.

Genentech Technology

The "gene splicing" techniques employed by Genentech are the result of recent scientific advances in molecular biology made by Genentech and others in the research community. A key factor in the successful development of a commercial technology has been the ability to insert segments of DNA containing specific genetic information, through what is commonly known as "recombinant DNA" or "gene splicing," into microorganisms which then are able to produce desired biochemical products. Genetic engineering of a microorganism is only one step, however, in developing a commercially viable process for the production of desired substances. Many additional sophisticated technical skills are necessary to build a useful technology. These include organic chemistry, protein chemistry, biology, microbiology, fermentation, purification and process development engineering (by which the genetically engineered microorganism is made capable of optimal production of the desired substance). The Company has developed the complementary skills and capabilities necessary to genetically engineer microorganisms and to obtain commercial quantities of products from them.

Although many of the individual techniques, processes and substances utilized by the Company are proprietary, the general procedures used in the Company's processes are as follows. First, DNA with a desired coding sequence is derived from the isolation and purification of genetic material from biological sources, such as animal tissues, or synthesized by techniques of organic chemistry. In many situations both sources are needed.

The DNA obtained in this manner, when specially tailored, becomes the basic "gene" containing the genetic information to "code" for the production of a desired product, such as interferon or human insulin. To this gene are assembled other pieces of DNA which contain the control signals or "instructions" to program the cell to manufacture the product coded for by the gene. The DNA segments are next precisely aligned and stitched into a circular piece of DNA called a "plasmid."

The plasmids containing the "stitched" genetic information are inserted into microorganisms, which then assimilate the newly encoded genetic information into their cellular makeup. Using their normal protein making machinery, the cells translate the information contained in each plasmid into the desired product.

Once a single microorganism containing the correct "genetic code" has been engineered and identified, it will divide and pass on to its offspring the same information contained in the parent cell. Then, using "fermentation" techniques similar to those used in the production of antibiotics, large populations of genetically engineered microorganisms can be grown to produce the desired product. These "microbial factories" are capable of producing new products using their "spliced" DNA as a source of genetic instructions. Genentech operates its own fermentation facilities for the scaled-up growth of recombinant microorganisms, and maintains a staff of fermentation specialists who operate these facilities.

As a next step, the Company "harvests" the genetically engineered microorganisms and isolates the desired product through a series of separation and purification techniques. The Company operates facilities for undertaking the preparation of purified product obtained by these methods, and employs protein chemists and development scientists to manage that preparation. Once a purified health care product is available, it can be tested in animal preclinical programs to determine pharmacological activity, efficacy and toxicity. The Company employs a group of scientists to undertake the biological testing of its products. Following an animal preclinical testing program and receipt of regulatory approvals, a product enters human clinical testing. (See "Clinical Programs" and "Marketing.")

Research and Development

Genentech has undertaken a broad product research and development program. Genentech's scientists have published their work in leading scientific journals, including *Science*, *Nature* and the *Proceedings of the National Academy of Sciences*.

Substantially all of the Company's operating expenses to date have been related to the development of products either on its own behalf or under contracts with customers. Revenues recognized under development contracts have been sufficient to fund approximately 70% of the Company's total costs and expenses from inception to June 30, 1980. Genentech anticipates that expenses related to product research and development will continue to constitute a major portion of operating expenses as the Company maintains an active research program to develop new products.

Genentech has on-going research and development programs aimed at developing potential products for use in pharmaceutical, agricultural and industrial applications. Among these are hormones, vaccines, blood products, immune-response stimulants, anti-virals, enzymes and various other biochemicals. These products are at various stages of development. Some are being pursued under product development contracts with customers, while others are being pursued independently by the Company. It is Genentech's policy not to disclose the nature of specific projects prior to the successful demonstration of a product with commercial potential.

Genentech conducts most of its product research and development activities at its own premises. It has also funded and will continue to fund research at universities and private research organizations. Such funded research is generally done under arrangements which give Genentech the right, ordinarily exclusively, to commercialize the results of the research, for which Genentech undertakes to pay a royalty to the research institution. In this manner, Genentech has thus far incurred royalty obligations with respect to certain of its products to two unaffiliated institutions, the University of California and the City of Hope National Medical Center, each under contract since 1976. Herbert W. Boyer, an officer and director of the Company, is a member of the University of California faculty (See "Management"). In June 1980, Genentech restructured its relationship with the University of California. (See Note (c) of Notes to Statement of Operations.) Genentech has agreed to pay each

of the two institutions royalties on sales of human insulin, human growth hormone and somatostatin, when made by it or its licensees. After August 1981, the Company's royalty obligation to the City of Hope is contingent upon the existence of one or more patents arising from the funded research which would, but for Genentech's ownership of the patent(s), be infringed by the activities underlying the royalty payment. Genentech has made application for a number of patents as a result of the City of Hope research. Certain of these have since been granted in a number of countries outside the United States. The Company's royalty obligations to the University of California are not contingent upon the grant of any associated patent.

Products

Genentech has publicly announced its development of six products with commercial potential: somatostatin, human insulin and proinsulin, human growth hormone, thymosin alpha-1, human leukocyte interferon and human fibroblast interferon.

Somatostatin. In 1977, Genentech produced somatostatin using a genetically engineered microorganism. This achievement represented the first production of a protein with commercial potential by means of recombinant DNA technology. Somatostatin, a hormone initially isolated from the brain and presently used by medical researchers, was selected by the Company as a demonstration product to show that its technology was commercially feasible. Somatostatin, currently available in relatively small quantities from synthetic peptide manufacturers, is an inhibitory hormone which affects the secretion of other hormones such as insulin and human growth hormone. It is currently of interest to medical researchers who are evaluating its activity for several clinical applications, including treatment of diabetes, gastroesophageal bleeding and certain hormonal disorders. Genentech is evaluating plans to manufacture somatostatin for sale to the medical research market. Currently, the Company is engaged in the process development and scale-up procedures necessary for the production of commercially saleable quantities of somatostatin. Several parties have indicated an interest in the purchase of somatostatin from the Company, but Genentech has made no contractual arrangements for the commercial application of this product.

Human Insulin and Proinsulin. In 1978, Genentech engineered microorganisms capable of being used in the production of human insulin identical to that produced by the human body. Insulin is a hormone which is produced in the body by the pancreas gland and is utilized in the metabolism of sugars and carbohydrates. The inability of the body to produce or utilize its own source of insulin results in a disorder known as diabetes. Currently diabetes requiring insulin is treated with animal insulin generally obtained from the pancreas glands of cows and pigs. Pancreas glands from animals are a byproduct of meat production and are, therefore, dependent upon the quantity of animals slaughtered for food consumption. Insulin obtained from animal sources is chemically different from human insulin and causes allergic reactions in some people. Genentech has also demonstrated the production of human proinsulin from a genetically engineered microorganism. Proinsulin, although not a therapeutic product itself, is a precursor molecule to insulin which may offer an economically attractive alternative route to the production of insulin.

In August 1978, the Company entered into a long-term agreement with Eli Lilly and Company ("Lilly") to manufacture and market human insulin developed by the Company. Lilly has received exclusive worldwide rights from Genentech to manufacture and market human insulin made using the Company's technology in return for the payment of royalties on product sales. Lilly, currently a leading manufacturer of animal-produced insulin, offered Genentech the best potential for rapidly

introducing this product. Since reaching agreement, Genentech and Lilly have been engaged in a joint program to scale-up production of human insulin. In July 1980, Lilly announced that it had started construction of manufacturing facilities to produce human insulin using recombinant DNA technology. In addition, Lilly announced that it had begun its clinical testing program on humans in the United Kingdom following preclinical animal and laboratory testing.

Human Growth Hormone. In 1979, Genentech announced the successful development of a genetically engineered microorganism capable of producing human growth hormone. Human growth hormone is produced by the pituitary gland and affects normal body growth of bones and tissue during the growth years. A deficiency of human growth hormone may result in a disorder known as hypopituitary dwarfism. This form of dwarfism is currently treated by administering human growth hormone obtained from pituitaries removed from cadavers. Due to the limited availability of these tissues, there is a worldwide shortage of this hormone, and many cases of dwarfism are either insufficiently treated or not treated at all. Human growth hormone is under scientific investigation for potential applications in addition to the treatment of dwarfism.

In August 1978, the Company entered into a long-term agreement with KabiGen AB ("Kabi"), an affiliate of AB Kabi, currently the world's largest supplier of human growth hormone, which gives Kabi the right to manufacture and market human growth hormone produced with the Company's technology throughout the world in return for the payment of royalties on product sales. Under this agreement, Genentech also has the right to supply a percentage of Kabi's marketing needs, and also retains the non-exclusive right to market the product in the United States and Canada.

Human growth hormone is currently undergoing preclinical testing in animals by both Genentech and Kabi. Genentech plans to commence its own human clinical program in the United States in 1981.

Thymosin Alpha-1. In 1979, Genentech produced thymosin alpha-1 from a genetically engineered microorganism. Thymosin alpha-1, a hormone isolated from the thymus gland, is believed to have an immune-response stimulating effect. Preparations of chemically synthesized thymosin alpha-1 are undergoing clinical trials sponsored by the National Cancer Institute in the treatment of certain types of brain and lung cancer. Genentech does not participate in these programs. To date, the Company has not contracted with any third party regarding the commercial development of thymosin alpha-1. Genentech is presently pursuing its own preclinical animal testing program, and is evaluating plans to enter its own human clinical program for thymosin alpha-1 in 1981. The ultimate therapeutic value or market potential of thymosin alpha-1 cannot be predicted at this time.

Leukocyte and Fibroblast Interferon. In 1980, Genentech announced that it had produced two types of interferon, human leukocyte and human fibroblast, from genetically engineered microorganisms. Interferon, a protein produced in the body, appears to inhibit the multiplication of viruses and proliferative cell growth, and is being widely evaluated by investigators. Human leukocyte and human fibroblast interferons obtained from blood cells and tissue cultures are currently undergoing human clinical testing within the United States in programs sponsored by the American Cancer Society and the National Cancer Institute. These trials are being undertaken on a number of different types of cancer as well as on different types of viral diseases. These tests show promising but currently inconclusive results, believed by Genentech and others to be due in large part to the extremely limited quantities of interferon available to date and the relative impurity of certain of the materials employed in the trials.

Human leukocyte interferon is currently obtained from leukocyte or white blood cells available from blood banks, and human fibroblast interferon is currently obtained from tissue cultures of human

connective tissue. The Company believes, based on its production process, that the manufacture of interferon using genetically engineered microorganisms will offer a vastly improved source of supply and reduction in cost over currently available methods. Human interferons produced by the Company's microorganisms differ in certain respects from interferons derived from blood cells and tissue culture. Limited non-clinical studies conducted by the Company have so far failed to reveal any resulting difference in activity. An increased supply of human interferon should greatly assist in determining efficacy in the many clinical applications currently under study.

In January 1980, the Company entered into a joint development contract with Hoffmann-La Roche Inc. ("Roche") to produce commercial quantities of interferon for the therapeutic market. Under this agreement, in return for payment of royalties on product sales, Roche receives worldwide exclusive marketing rights. Genentech has the right to supply Roche with a percentage of Roche's marketing requirements. Currently, interferon produced by Genentech is being preclinically tested in animals, and Genentech and Roche have announced plans to produce sufficient quantities of interferon for human clinical trials in 1981.

The Company has been made aware of a claim stated by the University of California against Roche alleging unauthorized use of certain materials in connection with its interferon project with the Company. Roche has asserted that its conduct in regard to the materials was proper and has filed an action against the University and certain of its employees seeking a judgment to that effect. Counsel for the University has stated that its claim against Roche will be extended to the Company, in which case Roche has agreed to indemnify the Company against any money judgment the Company might incur. Lyon & Lyon, patent counsel to the Company, has expressed the opinion that there is no reasonable likelihood that the Company will be subject to injunctive relief in the event of litigation against it. The Company cannot predict whether its future income from interferon sales would be adversely affected if a claim were established against Roche.

Manufacturing

Genentech operates its own manufacturing facilities to scale-up the production of its products and to manufacture commercial quantities. Techniques for optimizing fermentation and for separation and purification of products from recombinant microorganisms have been developed by the Company. In some cases, Genentech will use its manufacturing facilities to produce products for sale to customers. In other cases it will use the facilities for purposes of demonstrating that a commercial process has been achieved so it can be licensed to others who will manufacture product for sale. The Company believes the productive capacity of its present manufacturing facilities is adequate for its current needs. However, the Company presently has plans to expand its manufacturing facilities to accommodate anticipated future requirements (see "Use of Proceeds" and "Business—Properties").

Genentech's manufacturing activities generally involve the fermentation of recombinant organisms in amounts greater than 10 liters, a scale which it seeks permission to exceed from the National Institutes of Health ("NIH") upon recommendation of the NIH's Recombinant DNA Advisory Committee. Genentech has received NIH approval for scaled-up manufacture of somatostatin, human insulin and human proinsulin, human growth hormone, thymosin alpha-1, human leukocyte interferon and human fibroblast interferon. (See "Government Regulation.")

Although certain of the Company's equipment is specially designed to meet the Company's specifications, most of the equipment necessary for the Company's production process is commonly

available from vendors. Fermentation equipment is used by manufacturers of antibiotics and other pharmaceutical products. In general, the same fermentation equipment may be used to manufacture any of Genentech's products.

All manufacturing techniques and facilities used for the production of products for clinical programs or for sale must be operated in conformance with Good Manufacturing Practices, the Food and Drug Administration ("FDA") regulations governing production of pharmaceutical products.

Clinical Programs

In order to obtain the approval of the FDA in the United States and comparable agencies in foreign countries, and prior to the marketing of pharmaceutical products to be administered to humans, Genentech or its contract customers must undertake preclinical testing programs on animals and clinical testing programs on humans sufficient to establish product safety and efficacy. Genentech is currently evaluating plans for its own preclinical and clinical programs for human growth hormone and thymosin alpha-1. The commencement of a human clinical program in the United Kingdom for human insulin was announced by Lilly in July 1980. The animal preclinical and human clinical programs for human interferon will be undertaken by Roche. Although medical researchers outside the Company have indicated the desire to purchase somatostatin from the Company for clinical research, Genentech does not currently plan to undertake its own preclinical or clinical program for somatostatin.

Human growth hormone, thymosin alpha-1 and human interferon are presently being preclinically tested in animals by the Company or its contract customers. It is anticipated that Investigational New Drug Applications will be filed to seek permission to begin human clinical testing programs in the United States for these products in late 1980 or early 1981. The length, complexity and cost of each of these human clinical programs depends to a large degree on the characteristics of the product being evaluated, the relative lack of alternative drugs on the market, the existence or not of side effects and the potential long-term effects of the therapeutic agents involved.

Because of the considerable therapeutic history and clinical efficacy of insulin and human growth hormone available from conventional sources, Genentech anticipates expeditious completion of clinical programs involving corresponding products produced by microorganisms, even though such products are not identical in all respects to the materials previously in clinical use.

The FDA has ultimate responsibility for approval and permission to market products in the United States. There can be no assurance as to the timing or ultimate approval of the Company's products for marketing. (See "Government Regulation.")

Marketing

The largest portion of Genentech's current revenues is derived from customer contracts, each of which relates to a particular product development program and provides Genentech with a short-term source of revenues as well as the potential for long-term returns. The terms of each contract are unique, and depend largely upon the skills and interests of each party involved and the commercial potential for a particular product under development. Generally, however, a typical contract will provide for cash payments to Genentech in accordance with the conduct of research activities and/or the achievement of certain "benchmarks" in the development process for a particular product, and then additional payments upon eventual commercial application. Benchmark payments, when received, are non-refundable and have been treated as deferred revenue and recognized as

revenue as work under the contract progresses. Representative contract "benchmarks" have included microbial production of the desired product, demonstration of the product's therapeutic activity, delivery of various quantities of product so produced and attainment of specified yield criteria. In its performance to date, Genentech has successfully attained each scheduled benchmark of its several contracts in a timely fashion. To date, all contract revenues received by the Company have arisen from developmental activities rather than from royalties or product sales to end users.

Ordinarily, Genentech's contracts are cancellable by the customer on relatively short notice in the early research stages, and at times prior to the completion of certain benchmarks. In the case of the Lilly, Kabi and Roche agreements announced by Genentech, those benchmarks have been completed, but there is no assurance that any such customer will pursue commercialization of the resulting products to the point of entitling Genentech to royalty or other income upon market introduction. The Company is presently receiving payments under five other agreements with customers for its technology. These agreements are variously cancellable on notice of 90 days or less. In the event of any such cancellation, Genentech has no obligation to refund any payment previously received, and generally all manufacturing, marketing and other rights with respect to the product revert to Genentech.

Following the full term of their agreements with the Company, Roche, Kabi and Lilly will retain the right to use certain microorganisms provided by Genentech free of any royalty obligation to the Company. Genentech possesses and intends to retain stocks of the same microorganisms. Following expiration of the exclusivity provisions of the agreements referred to, the Company will be free to use these microorganisms for its own account in producing interferon, human growth hormone and human insulin for sale wherever governmentally approved.

Genentech's development contracts with Lilly, Kabi and Roche accounted for approximately 24%, 21% and 18%, respectively, of Genentech's total revenues in 1979. For the first six months of 1980, Roche and Lilly accounted for approximately 27% and 16%, respectively, of Genentech's total revenues, while Kabi accounted for less than 10%. The Company has received all research and development payments due under its agreement with Kabi. One additional customer accounted for approximately 11% of total revenues in 1979, while another accounted for approximately 17% of total revenues in the first six months of 1980.

As of June 30, 1980, and based on the continuation of contracts currently in effect, Genentech expects to recognize at least ~~\$7.6~~^{\$7.64} million in contract revenues during the research and development stage of its present contracts, compared to \$1.8 million at June 30, 1979. The Company does not believe that the loss of one or more of its unannounced contracts would have a material adverse effect on its financial condition.

Over the longer term, Genentech expects to derive the major portion of its revenues from product sales and royalties. Products may be marketed directly, under supply agreements with major contract customers (for example, sales of human growth hormone to Kabi and human interferon to Roche), by others who will share profit with Genentech, or under distribution agreements. In addition, all of Genentech's contracts with customers provide for either royalties to Genentech on the sale of licensed products manufactured by customers or for a sharing of the profits from such sales.

While Genentech has established a marketing group, it currently does not have its own sales force or distribution system. Genentech's long-term strategy is to market its own products. Genentech anticipates that its initial market area will be North America, and presently plans to sell certain of its products directly in this market.

Proprietary Technology—Patents and Trade Secrets

Genentech has a policy of seeking patents on inventions concerning novel techniques, processes, products or microorganisms developed as part of its on-going research and development activities. Worldwide, the Company has filed over 200 patent applications and, to date, several foreign patents have been issued. The Company plans to seek a strong proprietary position in its technology through the diligent pursuit of its patent claims and the protection of its knowhow. Genentech has supplemented its customary reliance on outside counsel by hiring full-time in-house patent counsel.

To the extent certain of the Company's end products are similar to products that have previously been isolated from other sources, patent protection on the end products may be unavailable. To obtain patent protection in such cases, the Company would be obliged to seek patents on the processes, plasmids, microorganisms and other means of end product manufacture, and to overcome obstacles to the detection of infringement that are customary in the enforcement of process, intermediate product and other such patents of secondary nature. The majority of the Company's patent applications now on file relate to the means for manufacturing the Company's announced products.

Genentech participated in the recent U.S. Supreme Court case *Diamond v. Chakrabarty* as an amicus curiae or "friend of the court." In the *Chakrabarty* case the Supreme Court decided that a genetically engineered microorganism was patentable subject matter under the law. The Commissioner of Patents and Trademarks had asserted that the patent laws as presently enacted did not extend to patents on microorganisms, and, pending the outcome of the case, the United States Patent and Trademark Office had suspended examination of patent applications filed by Genentech and others in its field. As a result of this favorable decision, Genentech believes that its patent applications on genetically engineered microorganisms, as well as the plasmids, processes and other techniques used in their manufacture, will now be reviewed. However, there can be no assurance that Genentech's patent applications will be reviewed favorably by the Patent and Trademark Office or that patents will provide the Company with sufficient protection if and when they are in fact issued. The patent laws of various countries differ, and, while in certain foreign countries microorganism patents have been recognized, there can be no assurance that patents on novel microorganisms and other products of gene-splicing will be available in various countries to which the Company's business may extend. Nevertheless, Genentech believes that patents will play an important role in the future development of the industry, and plans to pursue a policy of enforcing such patents as it obtains.

The extent to which efforts by other researchers will result in patents or other proprietary rights and the extent to which Genentech may need to obtain licenses from others are currently unknown. Although the Company has applied for numerous patents, it does not intend to rely solely on patent protection as the basis for protecting its proprietary technology. To the extent consistent with its policy of permitting its scientists to publish meritorious achievements in scientific journals and seminars (See "Business—Human Resources"), the Company likewise intends to rely upon trade secrets. It also intends to rely on continuing technological innovation and manufacturing and marketing efforts to develop and maintain its commercial position.

Competition

Human insulin developed by Genentech was the first product of recombinant DNA technology having major commercial potential. Based on information currently available, including past NIH approvals for scaled-up manufacturing and the number of products the Company has developed, Genentech believes it is the leader in developing products with commercial potential. How-

ever, competition can be expected to become more intense as technological advances are made and additional competitors enter the field. Because the industry is still in the early stages of development, competition is presently focused on research and development. The Company believes competition in the industry will be based on scientific and technological superiority, the availability of patent protection (see "Proprietary Technology—Patents and Trade Secrets"), the ability to commercialize technological developments and, in the case of pharmaceutical products, the ability to obtain government approval for testing, manufacture and marketing. As of July 1980, Genentech or contract customers using its technology had received NIH approval for scaled-up manufacturing in 9 of the 10 cases in which the NIH had granted such approval.

The Company believes significant long-term competition may come from large pharmaceutical or chemical companies and others. These companies have extensive financial, marketing and human resources, and the pharmaceutical companies have extensive experience in undertaking clinical trials and testing and in obtaining regulatory approval where necessary to market pharmaceutical products. Hence, Genentech has developed a strategy of working with several of them on the development and commercialization of products, as evidenced by its contracts with Lilly, Kabi and Roche. (See "Products" and "Marketing.")

In addition to pharmaceutical and chemical manufacturers, other companies have announced that they have entered the recombinant DNA field. Genentech is aware of the existence of several such companies, and due to the high degree of interest in the field Genentech anticipates that additional companies may enter the industry in the future.

Other groups active in the field of recombinant DNA include colleges, universities and public and private research organizations, many of which are conducting research in recombinant DNA and which may seek patent protection of their inventions. These organizations exist primarily to pursue scientific and educational objectives, however, and are not generally engaged in the direct commercialization of their technical achievements. Several of these organizations compete with Genentech and its other competitors in recruiting personnel from a limited supply of scientists and technicians.

Genentech believes that as this industry emerges from the current nascent stage of development, competition will focus more upon the ability of competitors to commercialize and market their products, including their ability to fund the plant and equipment expenditures necessary for manufacture.

Government Regulation

Genentech's present and proposed activities involve a field in which regulation by federal governmental authorities is a significant factor. This regulation applies not only to Genentech's research and development and manufacturing, but also to the marketing of present and proposed products, particularly those involving pharmaceutical applications.

In general, Genentech's present research activities are not subject to government regulations relating to recombinant DNA experimentation. However, Genentech and others in its field have adopted a policy of voluntarily complying with guidelines promulgated by the National Institutes of

Health ("NIH"). One provision of the NIH guidelines imposes an initial limit of 10 liters on the size of any population of genetically engineered microorganisms which may be grown. The NIH has established a procedure for exceeding the 10 liter limit upon recommendation by the Recombinant DNA Advisory Committee, and Genentech has applied for and received NIH approval to create populations in excess of 10 liters of all of the genetically engineered microorganisms which it has announced. (See "Products.")

In order to clinically test, manufacture and market pharmaceutical products, Genentech and/or its contract customers must obtain the approval of the Food and Drug Administration ("FDA") in the United States and comparable agencies in other countries. The FDA has established mandatory procedures and safety standards which apply to the manufacture, clinical testing and marketing of all pharmaceutical products. Obtaining FDA approval for the marketing of products and complying with FDA standards in manufacturing involve numerous procedures.

The procedure of seeking FDA approval of a new pharmaceutical product involves many steps, beginning with the availability of the product in highly purified form. The product must first be tested on animals to determine efficacy, safety and potential toxicity, and these animal test results are then submitted to the FDA as part of an Investigational New Drug Application to begin clinical trials on humans. After the completion of clinical trials a New Drug Application ("NDA") must be submitted to the FDA. When the FDA has reviewed the NDA and all additional information submitted during the review process, it will decide whether or not, and under what labeling conditions, it will permit the product to be sold. If the FDA approves the sale of a product, its regulations will govern the manufacturing process and marketing activities. The FDA may also require that a post-marketing testing and surveillance program be undertaken to monitor continuously a drug's effects.

The process of seeking and obtaining FDA approval of a new product traditionally can take a number of years and may require substantial funding. No pharmaceuticals produced by means of genetically engineered microorganisms have yet been submitted to the FDA for marketing approval, although Genentech believes such approvals will eventually be obtained.

In addition to the foregoing, the Company's present and future business will be subject to regulation under the Occupational Safety and Health Act, Environmental Protection Act, Resource Conservation and Recovery Act, Toxic Substances Control Act and other present or possible future legislation, as well as by governmental agencies with regulatory authority relating to Genentech's business. From time to time, legislation has been introduced to regulate various aspects of the technology, but Genentech is unaware of any proposed actions by federal, state or local authorities which might materially impair Genentech's ability to conduct its business.

Human Resources

As of August 15, 1980, Genentech employed 112 full-time employees and 14 consultants, of whom 40 hold PhD degrees and 17 hold other advanced degrees in scientific or technical fields. Of the full-time employees, 54 were engaged in research, 30 in process development and manufacturing and 28 in marketing, finance and administration. In each of the last two calendar years, Genentech has approximately doubled the size of its full-time staff, and in 1980 Genentech expects the size of its staff to more than double.

MANUFACTURING PROCESS

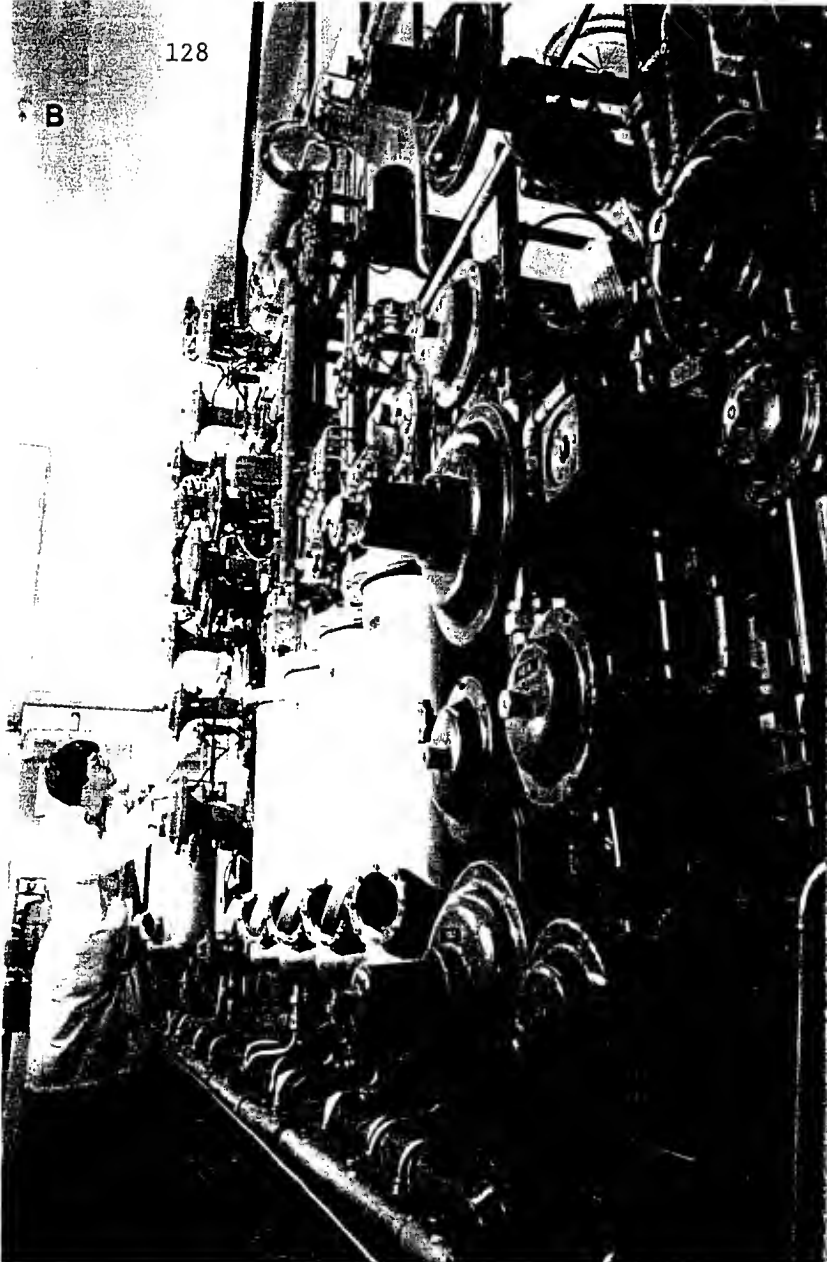
Recombinant microorganisms are grown through a process known as fermentation, first on a small scale (A) to determine optimal growth conditions and then on a larger scale for manufacturing (B). Cellular extract from fermentation is then purified (C), to make preparations (D) of the Company's products.

Genentech, Inc.
Genentech, Inc.
Genentech, Inc.
Genentech, Inc.
Genentech, Inc.

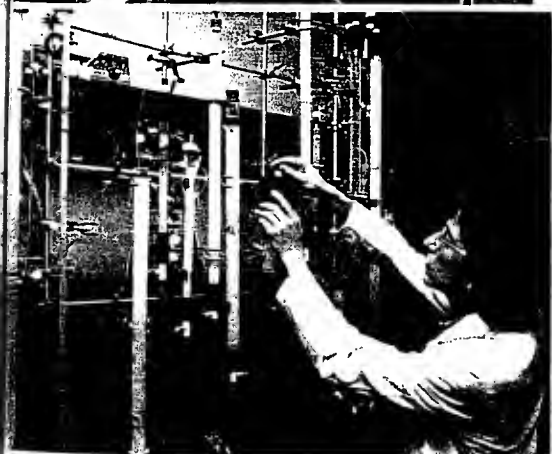
A



B



D



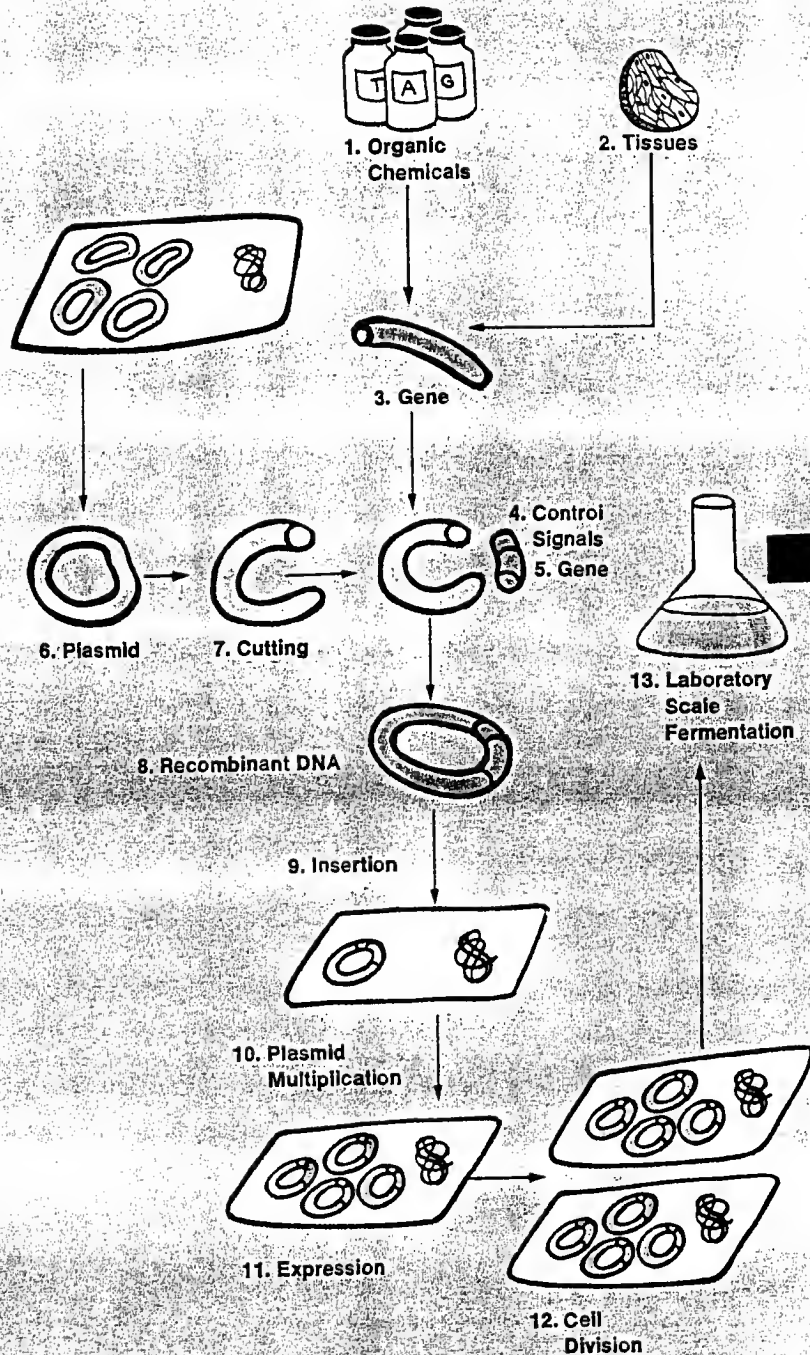
THE PRODUCT D

The development process begins by obtaining DNA either through organic synthesis (1) or derived from biological sources such as tissues (2). The DNA obtained from one or both sources is tailored to form the basic "gene" (3) which contains the genetic information to "code" for a desired product, such as human interferon or human insulin. Control signals (4) containing instructions are added to this gene (5). Circular DNA molecules called plasmids (6) are isolated from microorganisms such as *E. coli*; cut open (7) and spliced back (8) together with genes and control signals to form "recombinant DNA" molecules. These molecules are then introduced into a host cell (9).

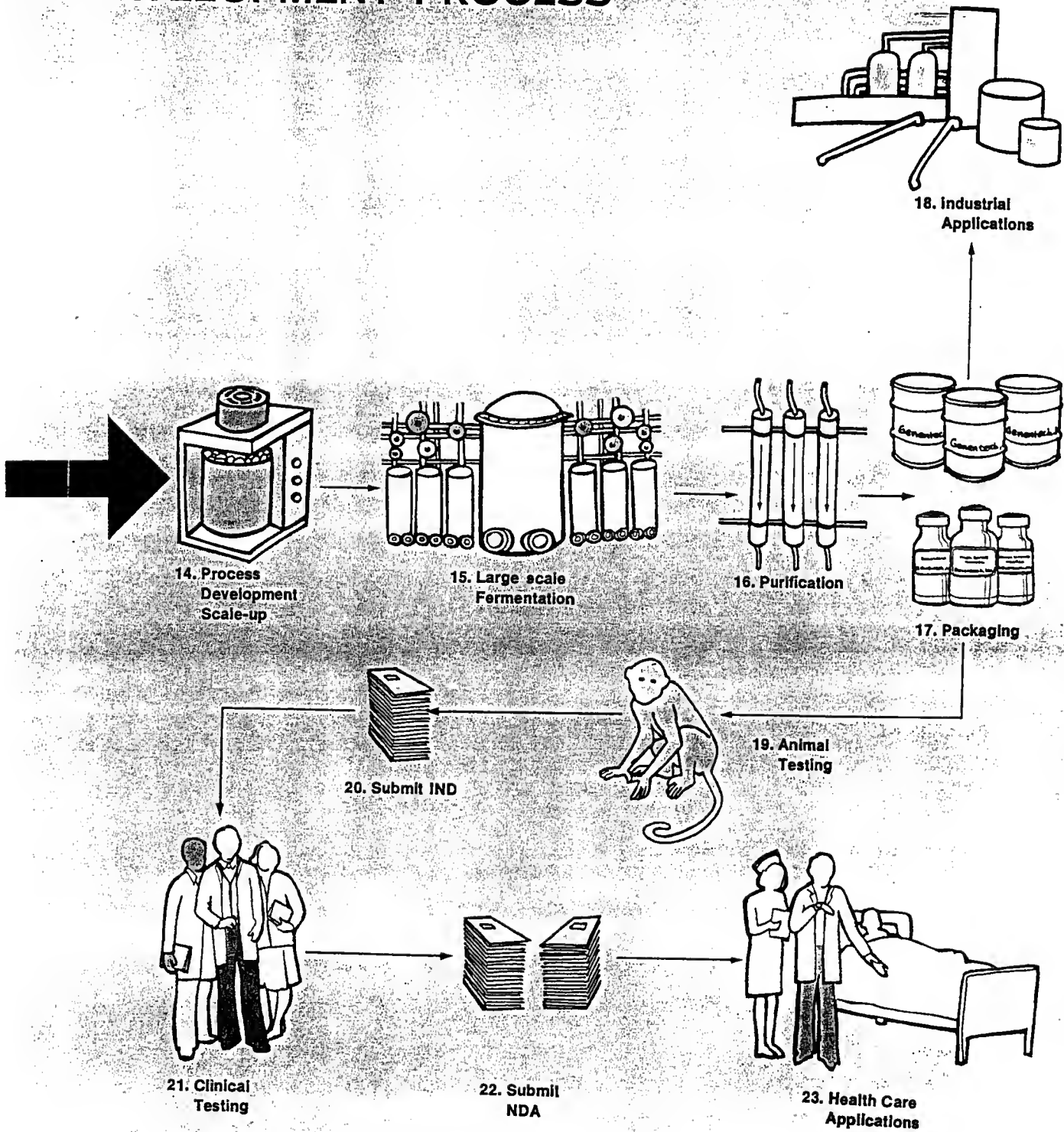
Each plasmid is copied many times in a cell (10). Each cell then translates the information contained in these plasmids into the desired product, a process called "expression" (11). Cells divide (12) and pass on to their offspring the same genetic information contained in the parent cell.

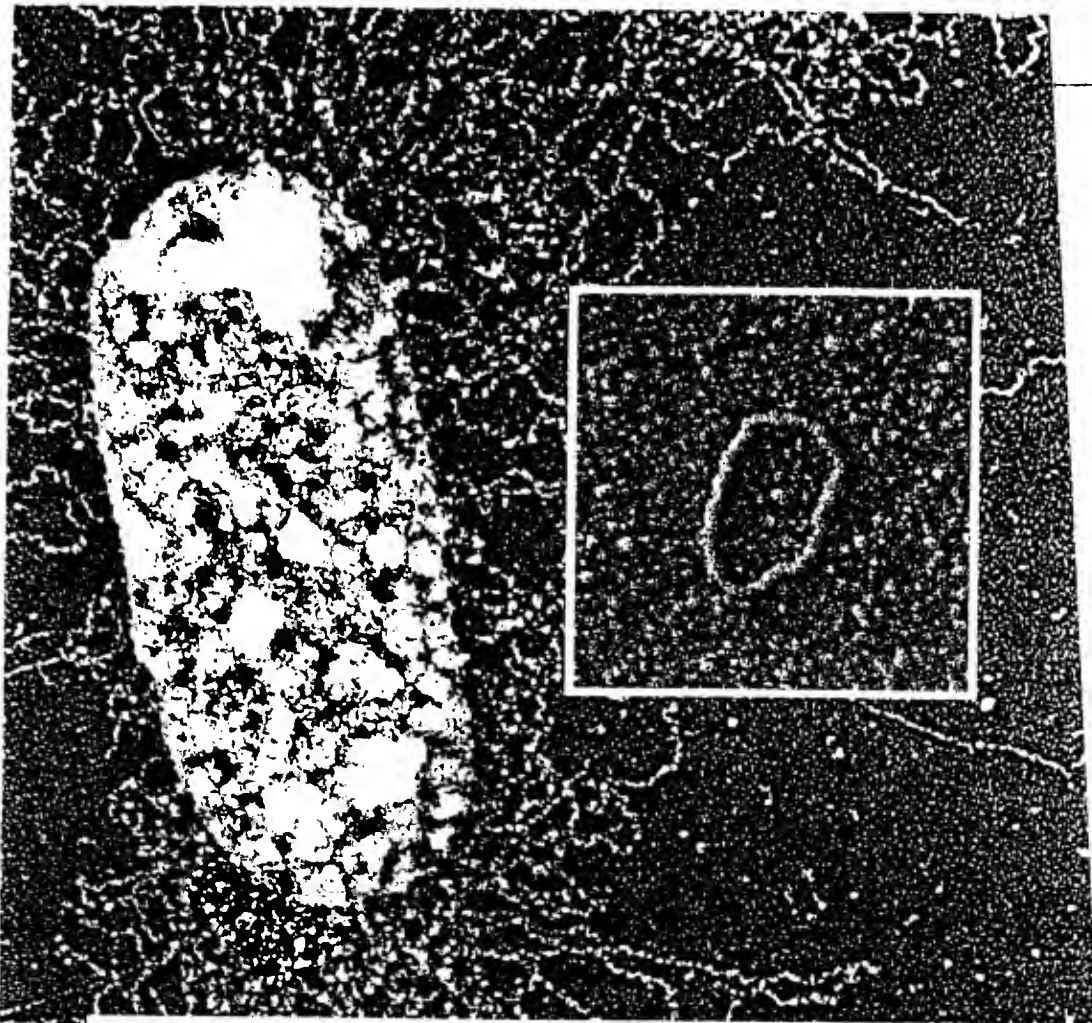
Fermentation of large populations of genetically engineered microorganisms is first done in shaker flasks (13), and then in small fermenters (14) to determine growth conditions, and eventually in larger fermentation tanks (15). Cellular extract obtained from the fermentation process is then separated, purified (16), and packaged (17) either for industrial use (18) or health care applications.

Health care products are first tested in animal studies (19) to demonstrate a product's pharmacological activity and safety. In the U.S., an Investigational New Drug (IND) application (20) is submitted to begin human clinical trials to establish safety and efficacy. Following clinical testing (21), a New Drug Application (NDA) (22) is filed with the Food and Drug Administration (FDA) in the U.S. When the NDA has been reviewed and approved by the FDA the product may be marketed in the U.S. (23).



JCT DEVELOPMENT PROCESS





RESEARCH AND DEVELOPMENT
Circular DNA molecules called plasmids (above, inset) are genetically engineered by "gene splicing" techniques utilized at Genentech. Once designed, the DNA is reintroduced into a microorganism cell such as *E. coli* (above).



Organic chemistry laboratory for gene synthesis (above).



Shaker flasks (above) recombinant microorganisms

Vessel (left) used in "gene splicing" techniques

Genentech provides its employees a professional working environment and opportunities for internal and external interaction with scientific professionals. Genentech maintains an active seminar and visitation program with the scientific community, and members of the organization publish in key scientific journals and participate in professional seminars. Genentech offers an attractive compensation, incentive and fringe benefit program. In addition, many employees are presently shareholders, and Genentech recently established an Employee Stock Plan for all full-time employees. (See "Management—Employee Stock Plan.") Genentech considers its employee relations to be excellent.

Properties

In January 1978, Genentech entered into a lease on its current facilities at 460 Point San Bruno Boulevard, South San Francisco, California, which now occupy approximately 24,000 square feet (all of which is utilized) of office, laboratory and manufacturing space in a modern industrial park. The Company has entered into several additional leases and now has leases or options extending through December 31, 1983 on facilities covering a total of approximately 90,000 square feet. As of June 30, 1980, Genentech had invested approximately \$2.2 million in leasehold improvements and equipment in its present facilities. These improvements consist primarily of the cost necessary to convert an industrial building to a laboratory and office configuration. Genentech commenced a capital expenditure program in 1980 which will develop the remainder of the space under its current leases. The cost of constructing and equipping facilities in this expansion will be approximately \$10 million, consisting primarily of additional laboratory and office facilities, a manufacturing facility and an animal facility for testing purposes. The aggregate rental for these total expanded facilities is approximately \$120,000 per year.

MANAGEMENT

The directors and executive officers of the Company are as follows:

<u>Name</u>	<u>Age</u>	<u>Position</u>
Robert A. Swanson	32	President, Chief Executive Officer and Director
Herbert W. Boyer	44	Vice President and Director
Thomas J. Perkins	48	Chairman of the Board of Directors
Fred A. Middleton	31	Vice President—Finance & Administration, Chief Financial Officer and Secretary
Robert F. Byrnes	35	Vice President—Marketing
Thomas D. Kiley	37	Vice President and General Counsel
Donald L. Murfin	37	Director

All directors hold office until the next annual meeting of shareholders and until their successors have been elected and qualified. Officers serve at the discretion of the Board of Directors.

Mr. Swanson, a founder of the Company, has served as President, Chief Executive Officer and director of Genentech since April 1976. From January to April, 1976, he was a general partner of Boyer & Swanson, a partnership formed to investigate the feasibility of commercializing recombinant DNA technology. Prior to 1976, Mr. Swanson was a limited partner of, and a venture capitalist at, the venture capital firm of Kleiner & Perkins. Mr. Swanson holds a bachelor's degree in chemistry and a master's degree in management from the Massachusetts Institute of Technology.

Dr. Boyer, a founder of the Company, has been associated on a full-time basis with the University of California at San Francisco since 1966 (as Professor of Biochemistry since 1976). From January to April, 1976, he was a general partner of Boyer & Swanson, a partnership formed to investigate the feasibility of commercializing recombinant DNA technology. He has been Vice President and director of Genentech since April 1976, and serves as a consultant to the Company. Dr. Boyer holds a PhD in microbiology from the University of Pittsburgh. Dr. Boyer is subject to the patent policy of the University of California, with whom the Company must reach agreement in order to gain rights under any invention made by him in the course of his University employment.

Mr. Perkins, a director of the Company since April 1976, has been a general partner of the venture capital firms of Kleiner & Perkins: Kleiner, Perkins, Caufield & Byers; and Kleiner, Perkins, Caufield & Byers II since 1973, 1978 and 1980, respectively. He is also a director of Spectra-Physics, Inc. and Chairman of the Board of Directors of Tandem Computers Incorporated. Mr. Perkins holds a bachelor's degree in electrical engineering from the Massachusetts Institute of Technology and an MBA from Harvard University.

Mr. Middleton was Vice President—Planning & Corporate Development for Chase Manhattan Bank from 1977 to 1978 before joining Genentech in August 1978 as Vice President—Finance & Administration and Chief Financial Officer. In April 1980, Mr. Middleton was elected Secretary of the Company. From 1975 to 1977, Mr. Middleton served as Assistant to the Chairman and Chief Executive Officer of Studebaker Worthington, Inc., a diversified manufacturer of process and automotive equipment. Prior to 1975, he served as a consultant with the international management consulting firm of McKinsey & Company. Mr. Middleton holds a bachelor's degree in chemistry from the Massachusetts Institute of Technology and an MBA in finance from Harvard University.

Mr. Byrnes was Vice President—Marketing and Sales for the McGaw Division of American Hospital Supply Corporation from 1976 to 1978 before joining Genentech in January 1979 as Vice President—Marketing. Prior to 1976, Mr. Byrnes was Vice-President—Marketing for the Amnar Stone Division of American Hospital Supply Corporation, a manufacturer and marketer of hospital and health care products. Previously, Mr. Byrnes held marketing positions with Eli Lilly and Company and Abbott Laboratories. Mr. Byrnes holds a bachelor's degree in pharmacy from Ferris State College and an MBA in marketing from Loyola University.

Mr. Kiley was associated with the law firm of Lyon & Lyon, specializing in patent, trademark and copyright law, from 1969 to 1980 (as a partner since 1975) before joining Genentech in February 1980 as Vice President and General Counsel. Mr. Kiley holds a bachelor's degree in chemical engineering from The Pennsylvania State University and a law degree from George Washington University.

Mr. Murfin was elected a director of the Company in April 1980. Since October 1979, Mr. Murfin has been President of Lubrizol Enterprises, Inc., a business development subsidiary of The Lubrizol Corporation ("Lubrizol"), a manufacturer of chemical additives for lubricants and fuels and specialty chemicals for industrial applications. In addition, since November 1978, Mr. Murfin has been Assistant to the President of Lubrizol. Prior to November 1978, Mr. Murfin served with Lubrizol in a number of capacities, including Assistant to the Chairman of the Board, Secretary, Assistant Secretary and Assistant to the Vice President—Administration and Secretary. Mr. Murfin has a bachelor's degree in chemistry from the University of Iowa. See "Certain Transactions" for a description of an arrangement between Genentech and Lubrizol regarding election of a representative of Lubrizol to the Board of Directors.

Remuneration

The following table sets forth certain information as to each of the Company's executive officers or directors whose aggregate direct remuneration exceeded \$50,000, and as to all officers and directors as a group, during the year ended December 31, 1979:

Individual or Persons in Group	Capacities in Which Served	Cash and Cash Equivalent Remuneration	
		Salaries, Fees and Bonuses	Securities and Personal Benefits
Robert A. Swanson	President	\$ 68,000	—
Robert F. Byrnes	Vice President— Marketing	\$ 67,000	\$1,000(1)
Fred A. Middleton	Vice President—Finance & Administration	\$ 53,000	\$ 500(2)
Officers and Directors as a Group (6 persons)		\$256,000	\$2,000(1)(2)

(1) Includes \$600 representing the difference between the fair market value, as determined by the Board of Directors, and the purchase price of shares purchased under Genentech's Stock Purchase Plan and \$400 representing the difference between the interest rate (4%) on Mr. Byrnes' promissory note to the Company and the approximate implicit interest rate (12%) on the Company's lease line agreements during 1979.

(2) Represents the difference between the interest rate (4%) on Mr. Middleton's promissory note to the Company and the approximate implicit interest rate (12%) on the Company's lease line agreements during 1979.

Directors of Genentech receive no remuneration for their service as directors.

Employee Incentive Compensation Plan

The Board of Directors has adopted an Employee Incentive Compensation Plan (the "Incentive Plan") which includes the award of bonuses to officers of Genentech. All employees of Genentech are eligible to receive bonuses under the Incentive Plan upon the authorization of the Board of Directors. Bonuses are based on the achievement of Genentech's goals and objectives as determined by management and the Board of Directors.

Series B Restricted Stock Purchase Plan

The Board of Directors and shareholders have adopted a Series B Restricted Stock Purchase Plan (the "Series B Plan") under which the Board of Directors may authorize the purchase by employees of and consultants to the Company (including officers) of up to an aggregate of 400,000 shares of Genentech's Series B Restricted Stock for cash and/or promissory notes at a purchase price of not less than 85% of fair market value. All authorizations to date under the Series B Plan have been at purchase prices equal to the fair market value of the shares offered, as determined by the Board of Directors.

Genentech's Series B Restricted Stock was created for use as an equity incentive for attracting and rewarding employees and consultants. It has voting and liquidation rights junior to those of the Common Stock, is not entitled to any dividends and is generally not transferable without the

Company's prior consent except to Genentech or by will or inheritance upon the death of the holder. Due to these restrictions, the value of the Series B Restricted Stock has been determined to be less than that of the Common Stock. The Series B Restricted Stock is automatically convertible into Common Stock upon the occurrence of certain potential events. (See "Description of Capital Stock—Series B Restricted Stock.")

As of September 30, 1980 the Board of Directors had authorized the purchase of a total of 201,750 shares of Series B Restricted Stock (all of which had been issued) under the Series B Plan by one officer and 35 other employees and consultants at an average price of \$1.27 per share. See "Certain Transactions" for a description of the purchase of 60,000 shares of Series B Restricted Stock under the Series B Plan by Thomas D. Kiley, an officer of the Company.

Employee Stock Plan

A total of 400,000 shares of Common Stock is presently reserved for issuance under Genentech's Employee Stock Plan, which was adopted by the Board of Directors and approved by the shareholders in August 1980. The Employee Stock Plan, which is intended to qualify under Section 423 of the Internal Revenue Code of 1954, as amended, is administered by the Board of Directors. Employees of Genentech (including officers) are eligible to participate if they are customarily employed by Genentech 20 hours or more per week and more than five months per year. Under the Plan, participating employees may receive rights to purchase Common Stock in such amounts and for such prices (not less than 85% of the fair market value of the shares on the date of grant of the right to purchase shares under the Plan or the date of purchase) as may be established by the Board of Directors, and may pay for shares purchased under the Plan by means of regular payroll deductions, lump sum cash payments or a combination of both as determined by the Board of Directors. No single purchase right granted to an individual employee under the Employee Stock Plan may cover more than 2,000 shares and no more than 30,000 shares may be purchased by all participating employees under the Plan during any single calendar quarter. Employees may end their participation in the Plan at any time and participation ends automatically on termination of employment.

To date, no shares have been offered or sold under the Employee Stock Plan, but the Board of Directors has authorized two types of grants. Initially, employees will be eligible to receive a right to purchase 200 shares of Common Stock each at a price of 85% of the price of the shares offered hereby. These rights will be exercisable by each participating employee on the date of the offering covered hereby, with payment due on or before October 31, 1980. On an on-going basis, employees will receive the grant of a right to purchase Common Stock with up to 10% of the participating employee's basic compensation (up to Plan maximums) at a price of 85% of the lesser of (a) the fair market value of the Common Stock on the date of grant and (b) the fair market value of the Common Stock on the date of exercise. The rights will have a term of 27 months and will generally be automatically exercisable on each January 1, April 1, July 1 and October 1 unless the participant has terminated his employment or withdrawn from the Plan prior to such date. For new employees, grants of rights under the Plan will be on the first grant date following employment by Genentech. Grant dates will occur on the date of the offering of the shares covered hereby and on the first day of each ensuing January, April, July and October. Only newly eligible employees will receive grants so long as participants hold a previously granted right, but a participant who has voluntarily withdrawn from the Plan will be eligible to receive a new grant on the next grant date.

136
CERTAIN TRANSACTIONS

The founders of the Company are Robert A. Swanson and Herbert W. Boyer. In connection with Genentech's formation, Messrs. Swanson and Boyer each received 25,000 shares of Genentech's Common Stock (subsequently reconstituted as 1,000,000 shares of Common Stock as a result of stock splits and recapitalizations), in exchange for which each contributed \$500 cash and his one-half interest in a partnership which they had formed in January 1976 to investigate the feasibility of commercializing recombinant DNA technology. The value of each partner's interest in the partnership was determined by Messrs. Swanson and Boyer to be \$12,000 on the basis of time (at regular consulting rates) and funds expended by the partners on behalf of the partnership in conducting its business. The partnership had no tangible assets.

In May 1978, Wilmington Securities, Inc. purchased from Genentech 6,250 shares of Genentech's Series A Preferred Stock (now reconstituted as 250,000 shares of Common Stock) for \$500,000 cash under a Preferred Stock Purchase Agreement dated April 28, 1978.

In September 1979, The Lubrizol Corporation ("Lubrizol"), parent of Lubrizol Enterprises, Inc., a business development subsidiary, purchased from Genentech 25,000 shares of Genentech's Series A Preferred Stock (now reconstituted as 1,000,000 shares of Common Stock) for \$10,000,000 cash under a Preferred Stock Purchase Agreement dated August 28, 1979 (the "Lubrizol Agreement"). Lubrizol transferred these shares and assigned its rights under the Lubrizol Agreement to Lubrizol Enterprises, Inc. in December 1979. The Lubrizol Agreement provides, among other things, that so long as Lubrizol holds at least 25,000 shares of Series A Preferred Stock or an equivalent amount of Common Stock (1,000,000 shares), Genentech will use its best efforts to cause and maintain the election to the Board of Directors of a mutually satisfactory representative of Lubrizol. At the April 1980 annual meeting, the shareholders elected Donald L. Murfin, Assistant to the President of Lubrizol and President of Lubrizol Enterprises, Inc., a director of the Company. Genentech and Lubrizol may in the future consider one or more cooperative projects, the commercial terms of which would be negotiated on an arm's length basis.

In November 1979, the Company received a \$300,000 payment from Inco Limited, whose affiliate, Inco Securities Corporation, was then a shareholder of the Company, in exchange for release of a claim by the Company to a small equity interest in, in exchange for information and assistance in connection with the formation of, Biogen, S. A., a concern otherwise unaffiliated with the Company.

In March 1980, in connection with his becoming a full-time employee, Thomas D. Kiley, Vice President and General Counsel of the Company, purchased 60,000 shares of Series B Common Stock (now reconstituted as 60,000 shares of Series B Restricted Stock) from Genentech at a price of \$1.00 per share under Genentech's Series B Common Stock Purchase Plan. The purchase price was paid with \$6,000 cash plus a four-year 6% full recourse promissory note (renewable for an additional four-year period) in the principal amount of \$54,000 (all of which is presently outstanding), secured by the shares purchased. Interest on the note has been paid monthly. In connection with Mr. Kiley's relocation to join the Company, the Company guaranteed repayment of housing bridge loans in the aggregate principal amount of approximately \$200,000, which loans have subsequently been repaid.

137
CERTAIN SHAREHOLDERS

The following table sets forth as of July 31, 1980 certain information regarding all shareholders known by Genentech to be the beneficial owners of more than 5% of Genentech's outstanding Common Stock and all directors and officers of Genentech as a group:

<u>Name and Address</u>	<u>Number of Shares</u>	<u>Percent of Class</u>
Robert A. Swanson c/o Genentech, Inc. 460 Point San Bruno Blvd. South San Francisco, CA 94080	925,000(1)	14.3%-
Herbert W. Boyer c/o Genentech, Inc. 460 Point San Bruno Blvd. South San Francisco, CA 94080	925,000	14.3%
Lubrizol Enterprises, Inc.(2) 29400 Lakeland Blvd. Wickliffe, OH 44092	1,555,200	24.0%
Kleiner & Perkins(3) Two Embarcadero Center San Francisco, CA 94111	938,800(1)	14.5%
Wilmington Securities, Inc. One Customs House Square Suite 550 One Customs Plaza Wilmington, DL 19801	400,000(1), (4)	6.2%
All directors and officers as a group (7 persons)	2,938,000(1), (5)	45.4%

(1) Kleiner & Perkins has informed the Company that it intends to distribute 844,920 of its 938,800 shares of the Company's Common Stock to its partners shortly after completion of the offering. As limited partners of Kleiner & Perkins (with interests of .12% and 40%, respectively), Robert A. Swanson and Wilmington Securities, Inc. will receive 831 and 332,689 shares, respectively, and will continue to have interests in the 93,880 shares retained by Kleiner & Perkins. Shareholdings shown for Mr. Swanson and Wilmington Securities, Inc. do not include any shares held by Kleiner & Perkins. Neither Mr. Swanson nor Wilmington Securities, Inc. has any voting or investment power over any shares held by Kleiner & Perkins.

(2) Lubrizol Enterprises, Inc. is a wholly owned subsidiary of The Lubrizol Corporation, a manufacturer of chemical additives for lubricants and fuels and specialty chemicals for industrial applications. Donald L. Murfin, President of Lubrizol Enterprises, Inc., is a director of Genentech.

(3) Thomas J. Perkins, a director of the Company, is a general partner of Kleiner & Perkins, a venture capital partnership.

(4) Includes 150,000 shares held by CRF Investments, Inc., a second-tier wholly owned subsidiary of Wilmington Securities, Inc. Wilmington Securities, Inc. is a wholly owned subsidiary of The Hillman Company, a company controlled by Henry L. Hillman and engaged in diversified operations and investments.

(5) Includes 938,800 shares held by Kleiner & Perkins, a venture capital partnership of which Thomas J. Perkins, a director of the Company, is a general partner. Excludes 1,555,200 shares held by Lubrizol Enterprises, Inc., whose President, Donald L. Murfin, is a director of the Company. Mr. Murfin disclaims beneficial ownership of such shares.

See "Certain Transactions" for a description of Series B Restricted Stock held by Thomas D. Kiley, an officer of the Company.

Based on the shareholdings of the following persons and their respective positions with the Company, Robert A. Swanson, Herbert W. Boyer, Kleiner & Perkins, The Lubrizol Corporation (through Lubrizol Enterprises, Inc.) and Wilmington Securities, Inc. may each be deemed a "parent" of Genentech within the meaning of the rules and regulations under the Securities Act of 1933, as amended. Each of the aforementioned persons and companies disclaims any controlling interest in, or that it is a "parent" of, the Company.

DESCRIPTION OF CAPITAL STOCK

Genentech's authorized capital consists of Preferred Stock, \$.02 par value (2,000,000 shares authorized), Common Stock, \$.02 par value (18,000,000 shares authorized), and Series B Restricted Stock, \$.02 par value (2,000,000 shares authorized).

Preferred Stock

The Board of Directors is authorized to fix or alter the dividend rights, dividend rate, conversion rights, voting rights, rights and terms of redemption (including sinking fund provisions), redemption price or prices and liquidation preferences of any wholly unissued series of Preferred Stock, and the number of shares constituting any such series and the designation thereof, and to increase or decrease the number of shares of any series subsequent to issuance of shares of that series. No shares of Preferred Stock are presently outstanding, and although such shares may be issued in the future, Genentech has no present plans to issue any such shares.

Common Stock

Holders of shares of Common Stock are entitled to one vote per share on all matters to be voted on by shareholders and are entitled to cumulate their votes in the election of directors. The holders of Common Stock are entitled to receive such dividends, if any, as may be declared from time to time by the Board of Directors, subject to any prior dividend rights of any outstanding Preferred Stock. (See "Dividends and Dividend Restrictions" for a description of certain restrictions on Genentech's ability to declare and pay dividends.) Upon liquidation or dissolution of Genentech, subject to any prior liquidation rights of any outstanding Preferred Stock, the holders of Common Stock are entitled to receive, prior and in preference to any distribution to the holders of Series B Restricted Stock by reason of their ownership thereof, the greater of (1) \$10.00 per share, or (2) an amount per share equal to 10 times the amount which, after such distribution, would remain available for distribution to the holders of Series B Restricted Stock for each share of Series B Restricted Stock then held by them. The foregoing liquidation preference is subject to appropriate adjustment in the event of any stock split, stock dividend or other similar event affecting the Common Stock. The Common Stock has no preemptive or other subscription rights, and there are no conversion rights or redemption or sinking fund provisions with respect to such shares. All of the outstanding shares of Common Stock are fully paid and nonassessable, as will be all shares in this offering.

Series B Restricted Stock

Series B Restricted Stock is sold to employees of and consultants to the Company pursuant to the Series B Restricted Stock Plan. Holders of Series B Restricted Stock are entitled to one-tenth vote per share on all matters to be voted on by shareholders and are entitled to cumulate their votes in the election of directors. No dividends may be declared or paid with respect to any share of Series B Restricted Stock. Upon liquidation or dissolution of Genentech, the holders of Series B Restricted Stock are entitled to receive pro rata their share of all assets remaining available for distribution to shareholders after payment of (1) liquidation preferences, if any, of holders of Preferred Stock

139

and (2) the liquidation preference of holders of Common Stock (see "Common Stock"). Generally, no shares of Series B Restricted Stock may be assigned or transferred without the Company's prior consent except (a) to the Company or (b) by will or inheritance upon the death of the holder. The Series B Restricted Stock has no preemptive or other subscription rights, and there are no redemption or sinking fund provisions with respect to such shares. All of the outstanding shares of Series B Restricted Stock are fully paid and nonassessable.

Each share of Series B Restricted Stock (whether issued or unissued) shall automatically be converted into one share of Common Stock upon: (i) the last day of any fiscal year in which the Company realizes gross revenues of at least \$16 million; or (ii) the last day of any fiscal year in which the Company realizes net earnings, after taxes and extraordinary items, of at least \$1.5 million; or (iii) the effectiveness of any merger or consolidation of the Company with or into another corporation, or any reorganization (as defined in Section 181 of the California Corporations Code) in which the Company is the acquired company, or any sale of all or substantially all of the assets of the Company.

The voting rights and conversion rate applicable to the Series B Restricted Stock are subject to pro rata adjustment in the event of any stock split, stock dividend or other similar event affecting the Common Stock.

Outstanding Registration Rights

The holders of an aggregate of approximately 3,500,000 shares of Common Stock issued upon conversion of Series A Preferred Stock sold by Genentech pursuant to four Preferred Stock Purchase Agreements are entitled under such Agreements to request that Genentech, at its expense, file a Registration Statement under the Securities Act of 1933, as amended (the "Act"), covering the sale of some or all of the shares owned by such holders. Upon such request by the holders of not less than a specified number of shares purchased under such Agreements, Genentech is obligated to exert its best efforts to effect such registration, provided the number of shares proposed to be registered is not less than certain minimum amounts set forth in such Agreements and subject to certain other conditions. Genentech is not required to effect more than a total of three such registrations.

In addition, under the aforementioned Preferred Stock Purchase Agreements and three subsequent letter agreements, whenever Genentech proposes to register any of its Common Stock under the Act for sale to the public solely for cash, Genentech is required to notify the holders of an aggregate of approximately 3,700,000 shares of Common Stock, and to include in such registration all shares of Common Stock which any of such holders may request; provided, however, that Genentech is required to include only such number of shares as would not, in the opinion of the managing underwriter(s) in any underwritten public offering, materially adversely affect the distribution of securities by Genentech. Any additional registration or qualification fees and expenses and other costs which result from the inclusion in such registration of shares held by selling shareholders shall be borne by such shareholders pro rata on the basis of the number of shares registered for the account of each. All holders of such registration rights have waived their rights with respect to this offering.

The holders of the registration rights described above include Kleiner & Perkins. Lubrizol Enterprises, Inc., Wilmington Securities, Inc. and CRF Investments, Inc.

Transfer Agent and Registrar

The First National Bank of Boston is the Transfer Agent and Registrar of Genentech's Common Stock.

Reports to Shareholders

Genentech intends to furnish its shareholders with annual reports containing audited financial information and to distribute quarterly reports containing unaudited financial information for the first three quarters of each year.

UNDERWRITING

The Underwriters named below have severally agreed, on the terms and conditions of the Underwriting Agreement, to purchase from Genentech, and Genentech has agreed to sell to the Underwriters, the respective number of shares of Common Stock set forth opposite their names below:

<u>Name</u>	<u>Number of Shares to Be Purchased</u>
Blyth Eastman Paine Webber Incorporated	162,000
Hambrecht & Quist	162,000
ABD Securities Corporation	10,000
Advest, Inc.	5,000
Bache Halsey Stuart Shields Incorporated	18,000
Bacon, Whipple & Co.	5,000
Robert W. Baird & Co. Incorporated	5,000
Basle Securities Corporation	10,000
Bateman Eichler, Hill Richards Incorporated	5,000
George K. Baum & Company Incorporated	2,000
Bear, Stearns & Co.	18,000
Sanford C. Bernstein & Co., Inc.	5,000
Birr, Wilson & Co., Inc.	2,000
William Blair & Company	5,000
Blunt Ellis & Loewi Incorporated	5,000
Boettcher & Company	5,000
J. C. Bradford & Co., Incorporated	5,000
Alex. Brown & Sons	10,000
Cazenove Inc.	10,000
The Chicago Corporation	5,000
Cowen & Company	2,000
Craigie Incorporated	2,000
Crowell, Weedon & Co.	5,000
Dain Bosworth Incorporated	5,000
Davenport & Co. of Virginia, Inc.	2,000
Davis, Skaggs & Co., Inc.	2,000
R. G. Dickinson & Co.	2,000
Donaldson, Lufkin & Jenrette Securities Corporation	18,000
F. Eberstadt & Co., Inc.	10,000
A. G. Edwards & Sons, Inc.	10,000
Eppler, Guerin & Turner, Inc.	5,000
Europartners Securities Corporation	10,000
Falnestock & Co.	5,000
First Equity Corporation of Florida	2,000
Robert Fleming Incorporated	10,000
Foster & Marshall Inc.	5,000
Goldman, Sachs & Co.	18,000
J. J. B. Hilliard, W. L. Lyons, Inc.	5,000
E. F. Hutton & Company, Inc.	18,000
Janney Montgomery Scott Inc.	5,000
Johnson, Lane, Space, Smith & Co., Inc.	5,000
Johnston, Lemon & Co. Incorporated	10,000

<u>Name</u>	<u>Number of Shares to Be Purchased</u>
Kidder, Peabody & Co. Incorporated	18,000
Kleinwort, Benson Incorporated	10,000—
Ladenburg, Thalmann & Co., Inc.	10,000
Lazard Frères & Co.	18,000
Lehman Brothers Kuhn Loeb Incorporated	18,000
McDonald & Company	5,000
Merrill Lynch, Pierce, Fenner & Smith Incorporated	18,000
Montgomery Securities	5,000
Morgan, Keegan & Company, Inc.	2,000
Moseley, Hallgarten, Estabrook & Weeden Inc.	10,000
Neuberger & Berman	5,000
New Court Securities Corporation	10,000
Newhard, Cook & Co. Incorporated	2,000
The Ohio Company	5,000
Pacific Securities Inc.	2,000
Parker/Hunter Incorporated	2,000
Piper, Jaffray & Hopwood Incorporated	5,000
Prescott, Ball & Turben	5,000
Rauscher Pierce Refsnes, Inc.	5,000
Robertson, Colman, Stephens & Woodman	10,000
The Robinson-Humphrey Company, Inc.	5,000
Rodman & Renshaw, Inc.	5,000
Rotan Mosle Inc.	5,000
L. F. Rothschild, Unterberg, Towbin	18,000
Scherck, Stein & Franc, Inc.	5,000
Schneider, Bernet & Hickman, Inc.	5,000
Shearson Loeb Rhoades Inc.	18,000
Smith Barney, Harris Upham & Co. Incorporated	18,000
Somers, Grove & Co., Inc.	2,000
Stephens Inc.	5,000
Sutro & Co. Incorporated	5,000
Thomson McKinnon Securities Inc.	10,000
Tucker, Anthony & R. L. Day, Inc.	10,000
Warburg Paribas Becker Incorporated	18,000
Wertheim & Co., Inc.	18,000
Wheat, First Securities, Inc.	5,000
Dean Witter Reynolds Inc.	18,000
<hr/>	
Bank Julius Bär & Co. A.G.	5,000
Banque Nationale de Paris	5,000
Banque de Paris et des Pays-Bas	5,000
Baring Brothers & Co. Limited	5,000
Compagnie de Banque et d'Investissements	5,000
Credit Commercial de France	5,000
Grievson, Grant & Co.	5,000
Lazard Brothers & Co., Limited	5,000
Samuel Montague & Co. Limited	5,000
Pictet International Ltd.	5,000
S. G. Warburg & Co. Ltd.	5,000
Total	<u>1,000,000</u>

The Underwriters are committed to purchase all of the shares of Common Stock offered hereby if any are purchased.

Genentech has been advised by Blyth Eastman Paine Webber Incorporated and Hambrecht & Quist, as Representatives, that the Underwriters propose to offer the shares of Common Stock to the public at the initial offering price set forth on the cover page of this Prospectus, and to certain securities dealers at such price less a concession not in excess of \$1.25 per share, and that the Underwriters and such dealers may reallocate to certain dealers, including any Underwriters, a discount not in excess of \$.25 per share. The public offering price and concessions and discounts to dealers may be changed by the Representatives. At the request of the Company, the Underwriters have reserved up to 50,000 shares to be first offered for sale at the initial offering price to employees and business associates of the Company. Any shares so purchased will not be available for sale to the general public.

Genentech has agreed to indemnify the Underwriters against certain liabilities, including liabilities under the Securities Act of 1933, or to contribute to payments the Underwriters may be required to make in respect thereof.

Genentech has granted an option to the Underwriters, exercisable during the 30-day period after the date of this Prospectus, to purchase up to a maximum of 100,000 additional shares of Common Stock at the same price per share that Genentech will receive for the 1,000,000 shares being purchased by the Underwriters as described above. The Underwriters may exercise such option only to cover over-allotments.

The Representatives of the Underwriters have informed Genentech that the Underwriters do not expect sales to discretionary accounts to exceed 5% of the total number of shares of Common Stock offered hereby and that the Representatives do not intend to confirm sales to any accounts over which they exercise discretionary authority.

See "Certain Shareholders" for shares owned by Kleiner & Perkins (of which Thomas J. Perkins, a director of the Company and a limited partner of Hambrecht & Quist, is a general partner) and Lubrizol Enterprises, Inc. (a limited partner of H & Q Ventures). H & Q Ventures is an affiliate of Hambrecht & Quist, a Representative of the Underwriters. Venture Associates, S.A., an affiliate of Hambrecht & Quist, holds 69,400 shares of Common Stock.

Pricing of the Offering

Prior to this offering, there has been no public market for the Common Stock of the Company. Consequently, the offering price has been determined by negotiation between Genentech and the Representatives of the Underwriters. Among the factors considered in such negotiations were prevailing market conditions, the prices paid by previous investors in Genentech's stock, estimates of the business potential of the Company and the present state of the Company's development. Based on the initial public offering price of \$35.00 per share, the market value of the shares to be outstanding after the offering (assuming no exercise of the over-allotment option) would be approximately \$262 million. The offering price set forth on the cover page of this Prospectus should not, however, be considered an indication of the actual value of the Common Stock of the Company.

LEGAL MATTERS

The legality of the shares of Common Stock offered hereby is being passed upon for the Company by Cooley, Godward, Castro, Huddleson & Tatum, San Francisco, California. Pillsbury, Madison & Sutro, San Francisco, California, are acting as counsel for the Underwriters in connection with certain legal matters relating to the shares of Common Stock offered hereby.

EXPERTS

The financial statements at June 30, 1980 and for the six-month period then ended, for each of the three years in the period ended December 31, 1979 and the period from April 7, 1976 (date of incorporation) to December 31, 1976, included herein, and the related schedules included in the Registration Statement have been examined by Arthur Young & Company, certified public accountants, as set forth in their reports appearing elsewhere herein and in the Registration Statement, and have been included herein in reliance upon such reports and upon the authority of such firm as experts. The opinion of Lyon & Lyon, Los Angeles, California, concerning the alleged claim against Hoffmann-La Roche Inc. set forth in "Business—Products—Leukocyte and Fibroblast Interferon" is included herein on the authority of that firm as experts in patent and related matters.

ADDITIONAL INFORMATION

Genentech has filed with the Securities and Exchange Commission, Washington, D.C. 20549, a Registration Statement under the Securities Act of 1933, as amended, with respect to the Common Stock offered hereby. This Prospectus does not contain all of the information set forth in the Registration Statement and the exhibits and schedules thereto. For further information with respect to Genentech and such Common Stock, reference is hereby made to such Registration Statement, exhibits and schedules.

REPORT OF CERTIFIED PUBLIC ACCOUNTANTS

The Board of Directors
GENENTECH, INC.

We have examined the accompanying balance sheet of GENENTECH, INC. at June 30, 1980 and the related statements of operations, shareholders' equity and changes in financial position for the six-month period then ended, each of the three years in the period ended December 31, 1979, and the period from April 7, 1976 (date of incorporation) to December 31, 1976. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the statements mentioned above present fairly the financial position of GENENTECH, INC. at June 30, 1980 and the results of operations and changes in financial position for the six-month period then ended, each of the three years in the period ended December 31, 1979, and the period from April 7, 1976 (date of incorporation) to December 31, 1976, in conformity with generally accepted accounting principles applied on a consistent basis during the period.

ARTHUR YOUNG & COMPANY

San Francisco, California
August 14, 1980

GENENTECH, INC.

BALANCE SHEET

June 30, 1980

ASSETS

Current assets:	
Cash	\$ 716,192
Certificates of deposit	8,510,000
Commercial paper, at cost	1,429,882
Accounts receivable	886,606
Interest receivable	537,538
Prepaid income taxes and other assets (Note 6)	300,527
Total current assets	<u>12,380,745</u>
Equipment and improvements, at cost:	
Equipment	241,301
Leasehold improvements	1,824,133
Equipment under capital leases (Note 2) ..	117,955
	<u>2,183,389</u>
Less accumulated depreciation and amortization ..	<u>(491,480)</u>
Net equipment and improvements	1,691,909
Patents pending and other assets (Note 1)	<u>100,642</u>
	<u><u>\$14,173,296</u></u>

See accompanying notes.

GENENTECH, INC.

BALANCE SHEET

June 30, 1980

LIABILITIES AND SHAREHOLDERS' EQUITY

Current liabilities:	
Accounts payable	\$ 176,938
Accrued liabilities	238,016
Taxes payable	256,800
Current obligations under capital leases (Note 2)	20,885
Deferred revenue (Note 4)	<u>2,167,370</u>
Total current liabilities	2,860,009
Long-term obligations under capital leases (Note 2)	<u>56,212</u>
Total liabilities	2,916,221
Commitments and contingencies (Note 3)	
Shareholders' equity (Note 5):	
Preferred Stock, \$.02 par value;	
2,000,000 shares authorized; none issued	—
Common Stock, \$.02 par value;	
18,000,000 shares authorized;	
6,472,102 shares issued and outstanding	129,442
Series B Restricted Stock, \$.02 par value;	
2,000,000 shares authorized;	
152,000 shares issued and outstanding	3,040
Capital in excess of par value	11,974,889
Deficit	(691,230)
Notes receivable from sale of stock	<u>(159,066)</u>
Total shareholders' equity	<u>11,257,075</u>
	<u>\$14,173,296</u>

See accompanying notes.

STATEMENT OF SHAREHOLDERS' EQUITY

	Preferred Stock		Common Stock		Series B Restricted Stock		Capital in Excess of Par Value	Deficit	Less Notes Receivable from Sale of Stock	Total Share- holders' Equity
	Shares	Amount	Shares	Amount	Shares	Amount	\$	\$		
Issuance of Preferred Stock ..	20,000	\$ 400	—	\$ —	—	—	\$ 99,600	—	\$ —	\$ 100,000
Issuance of Common Stock ..	—	—	600,000	12,000	—	—	18,000	—	(4,000)	26,000
Payments on notes receivable ..	—	—	—	—	—	—	—	—	1,022	1,022
Net loss	—	—	—	—	—	—	—	(88,601)	—	(88,601)
Balance at December 31, 1976 ..	20,000	400	600,000	12,000	—	—	117,600	(88,601)	(2,978)	38,421
Issuance of Preferred Stock ..	29,496	590	—	—	—	—	849,485	—	—	850,075
Issuance of Common Stock ..	—	—	22,500	450	—	—	675	—	—	1,125
Stock issuance costs	—	—	—	—	—	—	(8,153)	—	—	(8,153)
Payments on notes receivable ..	—	—	—	—	—	—	—	—	2,978	2,978
Net loss	—	—	—	—	—	—	—	(426,481)	—	(426,481)
Balance at December 31, 1977 ..	49,496	990	622,500	12,450	—	—	959,607	(515,082)	—	457,965
Issuance of Preferred Stock ..	11,875	237	—	—	—	—	949,763	—	—	950,000
Issuance of Common Stock ..	—	—	100,750	2,015	—	—	28,210	—	(30,225)	—
Payments on notes receivable ..	—	—	—	—	—	—	—	—	5,476	5,476
Net loss	—	—	—	—	—	—	—	(373,286)	—	(373,286)
Balance at December 31, 1978 ..	61,371	1,227	723,250	14,465	—	—	1,937,580	(888,368)	(24,749)	1,040,155
Issuance of Common Stock ..	—	—	45,726	915	—	—	29,678	—	(20,500)	10,093
Repurchase of Common Stock ..	—	—	(3,750)	(75)	—	—	(1,050)	—	—	(1,125)
Issuance of Preferred Stock ..	25,000	500	—	—	—	—	9,999,500	—	—	10,000,000
Stock issuance costs	—	—	—	—	—	—	(11,000)	—	—	(11,000)
Ten-for-one conversion of Preferred Stock	(86,371)	(1,727)	863,710	17,274	—	—	(15,547)	—	—	—
Payments on notes receivable ..	—	—	—	—	—	—	—	—	9,954	9,954
Net income	—	—	—	—	—	—	—	116,336	—	116,336
Balance at December 31, 1979 ..	—	—	1,628,936	32,579	—	—	11,939,161	(772,032)	(35,295)	11,164,413
Repurchase of Common Stock ..	—	—	(558)	(11)	—	—	(156)	—	—	(167)
Four-for-one conversion of Common Stock	—	—	4,885,134	97,702	—	—	(97,702)	—	—	—
Repurchase of Common Stock ..	—	—	(41,410)	(828)	—	—	(15,374)	—	—	(16,202)
Issuance of Series B Restricted Stock	—	—	—	—	—	—	—	—	—	—
Payments on notes receivable ..	—	—	—	—	152,000	3,040	148,960	—	(135,600)	16,400
Net income	—	—	—	—	—	—	—	80,802	11,829	11,829
Balance at June 30, 1980	—	\$ —	6,472,102	\$ 129,442	152,000	\$3,040	\$11,974,889	\$(691,230)	\$(159,066)	\$11,257,075

See accompanying notes.

GENENTECH, INC.

STATEMENT OF CHANGES IN FINANCIAL POSITION

	Period from April 7, 1976 (date of incor- poration) to December 31, 1976	Year Ended December 31,			Six Months Ended June 30,	
		1977	1978	1979	1979 (Unaudited)	1980
Cash, certificates of deposit and commercial paper, beginning of period	\$ —	\$ 85,192	\$487,945	\$ 953,059	\$ 953,059	\$10,621,855
Sources:						
Net income (loss) before extraordinary item	(88,601)	(426,481)	(373,286)	81,536	6,069	51,802
Depreciation and amortization	194	4,526	63,611	258,912	80,042	165,689
• Total working capital from (used in) operations before extraordinary item	(88,407)	(421,955)	(309,675)	340,448	86,111	217,491
Extraordinary item—utilization of loss carryforward	—	—	—	34,800	2,500	29,000
Increase (decrease) in accounts payable and accrued liabilities	—	78,722	70,102	213,681	(35,112)	52,449
Increase (decrease) in note payable to preferred shareholder	50,000	(50,000)	—	—	—	—
Retirement of fixed assets	—	—	—	9,815	—	—
Issuance of stock for cash and notes	130,000	843,047	980,225	10,019,593	7,648	152,000
Increase in deferred revenue	—	—	290,100	194,900	211,000	1,682,370
Increase in taxes payable	—	—	—	28,700	10,150	228,100
Decrease (increase) in patents pending and other assets	(1,801)	(16,354)	(53,280)	1,542	33,668	(32,189)
	89,792	433,460	977,472	10,843,479	315,965	2,329,221
Uses:						
Increase in receivables and pre-pays	4,328	689	29,913	217,313	37,380	1,631,494
Equipment purchases	272	57,287	187,372	32,085	13,780	92,065
Leasehold improvement purchases	—	—	371,108	907,318	96,346	545,709
Decrease (increase) in lease obligations	—	(27,269)	(76,035)	16,842	8,122	9,365
Repurchase of common stock	—	—	—	1,125	—	16,369
	4,600	30,707	512,358	1,174,683	155,628	2,295,002
Cash, certificates of deposit and commercial paper, end of period	\$ 85,192	\$487,945	\$953,059	\$10,621,855	\$1,113,396	\$10,656,074

Working capital at the end of each period is as follows: December 31, 1976—\$36,542; 1977—\$406,289; 1978—\$503,879; 1979—\$9,943,164; and June 30, 1979—\$508,218; and 1980—\$9,520,736.

See accompanying notes.

GENENTECH, INC.

NOTES TO FINANCIAL STATEMENTS

(Information for the six-month period ended June 30, 1979 is unaudited) -----

1. Summary of Significant Accounting Policies

Equipment and leasehold improvements

Equipment and leasehold improvements are stated at cost. Depreciation of equipment and leased equipment under capital leases is calculated using the straight-line basis over useful lives of eight years and seven years, respectively. Leasehold improvements are amortized over the length of the lease, including any option period. As a result of the Company entering into additional leases and options, the estimated life of certain leasehold improvements was extended by 24 months in 1980, which decreased depreciation expense. The effect was to increase income before extraordinary item by \$89,000 (\$.01 per share) and net income by \$118,000 (\$.02 per share) for the six months ended June 30, 1980.

Maintenance and repairs are charged to expense as incurred. The cost of betterments and renewals is capitalized. At the time properties are retired or otherwise disposed of, the related costs and accumulated depreciation are removed from the accounts and resultant gains and losses taken into income.

Patents

It is the Company's practice to seek patent protection on processes and products in various countries. Patent application costs of approximately \$95,000 have been capitalized. The cost of patents that are approved will be amortized over their useful lives, not exceeding 17 years, on a straight-line basis.

In connection with the research and development contracts discussed in Note 4, certain customers have agreed to incur the costs associated with seeking foreign patents. Through June 30, 1980, these customers had incurred filing costs of approximately \$246,000. Portions of these costs may be recovered by these customers through reduced royalty payments to the Company.

Revenue Recognition

Payments for research and development are generally received in advance and are recognized as revenue over the periods of time stated in the related agreements.

Investment tax credits

Investment tax credits, when utilized, will be recorded by the flow-through method.

NOTES TO FINANCIAL STATEMENTS—(Continued)

2. Obligations Under Capital Leases

The following is a schedule, by years, of future minimum lease payments under capital lease obligations together with the present value of the net minimum lease payments as of June 30, 1980:

1980 (six months to December 31)	\$14,868
1981	27,430
1982	19,828
1983	16,465
1984	16,465
1985	4,116
Total minimum lease payments	99,172
Less amount representing interest	22,075
Present value of net minimum lease payments	77,097
Less current portion	20,885
Long-term portion	<u>\$56,212</u>

The Company is responsible for taxes, insurance and maintenance under its equipment leases.

3. Commitments

The Company has entered into three equipment lease agreements aggregating \$1.5 million, of which approximately \$1.1 million has been utilized and \$350,000 committed under purchase orders at June 30, 1980. The Company is required to maintain \$250,000 in short-term investments as a security deposit.

These agreements require, among other things, that the Company maintain \$750,000 of working capital (as defined), place limits on certain types of debt and preclude the payment of dividends without prior approval.

At June 30, 1980, the Company had \$50,000 of standby letters of credit outstanding for lease obligations which expire through December 31, 1983.

The following is a schedule, by years, of future minimum rental commitments under operating leases:

	<u>Facility</u>	<u>Leased Equipment</u>	<u>Total</u>
1980 (six months to December 31)	\$ 60,460	\$ 101,632	\$ 162,092
1981	115,616	203,264	318,880
1982	120,396	203,264	323,660
1983	120,396	203,264	323,660
1984	—	203,264	203,264
1985	—	203,264	203,264
Thereafter	—	162,218	162,218
Total	<u>\$416,868</u>	<u>\$1,280,170</u>	<u>\$1,697,038</u>

At August 1, 1980, the Company was contingently liable for approximately \$40,000 as guarantor of certain employees' notes payable.

The Company is responsible for taxes, insurance and maintenance under its equipment leases.

NOTES TO FINANCIAL STATEMENTS—(Continued)

4. Contract Revenue

The Company has entered into separate agreements with a number of customers for the purpose of developing special microorganisms. The contracts generally provide for nonrefundable payments which are recognized as revenue over the periods specified in the agreements. These contracts are subject to review and renewal and are intended to fund research costs expected to be incurred by the Company. In return for payments and royalties, contract clients will receive certain manufacturing and marketing rights. Cash payments received by the Company which have not yet been recognized as revenue are recorded as deferred revenue.

Several major customers (3 in 1978, 4 in 1979, and 4 and 5 in the six months ended June 30, 1979 and 1980, respectively) contributed substantially all of the Company's contract revenues in each period. Contract revenues from customers in Western Europe were approximately \$400,000 in 1978, \$1.1 million in 1979, and \$600,000 and \$500,000 for the six months ended June 30, 1979 and 1980, respectively.

5. Capital Stock

Pursuant to the Articles of Incorporation, each outstanding share of Series A Preferred Stock was automatically converted into 10 shares of Common Stock as of December 31, 1979, such date being the last day of the first fiscal year in which the Company had gross receipts of at least \$2 million.

On December 19, 1979, the Board of Directors approved a recapitalization, which was approved by the shareholders and became effective on January 31, 1980. The recapitalization created two series of Common Stock, Series A and Series B, with the Series A carrying superior voting, liquidation (at least \$10 per share) and other rights over the Series B. Each outstanding share of Common Stock was converted into four shares of Series A Common Stock. A new Preferred Stock was also created for possible future issuance on terms to be fixed by the Board of Directors. In August 1980, the Series A Common Stock was converted into Common Stock and the Series B Common Stock was converted into Series B Restricted Stock.

As part of the recapitalization, a stock purchase plan was approved by the Board of Directors and shareholders. Under this plan, as amended in August 1980, the Company may issue up to 400,000 shares of its Series B Restricted Stock at a price not less than 85% of fair market value. As of June 30, 1980, 152,000 shares had been issued for cash and notes and 31,750 additional shares had been authorized for issuance. The plan, which can be terminated at the Company's option, expires on December 31, 1983.

No dividends may be declared or paid on the Series B Restricted Stock, each share has one-tenth the voting and liquidation rights of a share of Common Stock and such shares are generally not transferable. Each share of Series B Restricted Stock is to be automatically converted into one share of Common Stock upon the realization in any fiscal year of gross revenues of \$16 million or net income of \$1.5 million or the occurrence of a merger or acquisition of the Company.

The Company has issued Common Stock pursuant to a stock purchase plan which expired December 31, 1979. Under the plan, 146,476 shares were sold for cash and notes. The plan allowed the Company to sell Common Stock to officers, employees and consultants of the Company at prices not less than 85% of fair market value.

NOTES TO FINANCIAL STATEMENTS—(Continued)

A portion of the shares sold under the employee plans is held in escrow and, if termination of employment occurs prior to the completion of a specified period, the Company has the option to repurchase, at the price originally paid, those shares which have not accrued to the benefit of the purchaser as of the date of termination. The escrowed shares accrue to the benefit of the purchaser on a straight-line basis over the term of the escrow agreement.

6. Income Taxes

The provision for income taxes is based upon the statutory Federal and state income tax rates and consists of the following:

	Year Ended December 31, 1979	Six Months Ended June 30, 1979 1980 (unaudited)	
Federal:			
Charge equivalent to tax benefit of operating loss carryforward	\$34,800	\$ 2,500	\$ 29,000
Current	—	—	195,000
Deferred (prepaid)	—	—	(195,000)
	<u>34,800</u>	<u>2,500</u>	<u>29,000</u>
State:			
Current	28,700	10,150	76,000
Deferred (prepaid)	(17,200)	(9,300)	(68,000)
	<u>11,500</u>	<u>850</u>	<u>8,000</u>
	<u>\$46,300</u>	<u>\$ 3,350</u>	<u>\$ 37,000</u>

The tax benefit of the utilization of accounting loss carryforwards has been reflected as an extraordinary credit in the statement of operations for the year ended December 31, 1979 and the six-month periods ended June 30, 1979 and 1980.

Deferred income taxes relate entirely to the reporting of taxable income (principally deferred contract revenues) on a cash basis.

For financial reporting purposes, the Company has a loss carryforward of approximately \$600,000 at June 30, 1980.

7. Supplementary Information

Item	Charged to Costs and Expenses			
	Year Ended December 31, 1977 1978 1979			Six Months Ended June 30, 1980
Maintenance and repairs	\$ —	\$15,021	\$ 36,675	\$ 39,383
Depreciation and amortization	4,526	63,611	258,912	165,689
Taxes other than income taxes:				
Payroll	1,903	16,842	53,371	67,984
Property	—	3,088	43,164	8,200
Rents	4,006	54,501	176,813	135,106

Other supplementary items have been omitted since they are less than 1% of total revenues.

GENENTECH, INC.

Purchase of Common Stock
By Corning Glass Works
And Formation of
Genencor, Inc.

1982

Genentech, Inc.

Point San Bruno Boulevard
San Francisco, CA 94080
952-1000
9103717168

March 25, 1982

James L. Flynn
Vice President and Treasurer
Corning Glass Works
Houghton Park, NY 14831

Dear Jim:

I am writing to formalize what I believe to be our mutual understanding concerning Corning's proposed equity investment in Genentech and to finalize several points which remained open after our March 16 meeting.

Coordination with Formation of Genencor, Inc.

Both Corning and Genentech see Corning's proposed equity investment in Genentech as an important element in an overall relationship between us, which also includes our proposed joint venture in the field of industrial enzymes. Therefore, it is important to both parties that the proposed investment and joint venture commence simultaneously. As a result, we need to finalize the negotiations and complete the documentation for both transactions quickly, particularly so that the joint venture can commence. We understand that Corning may have some interest in announcing the commencement of the Genencor, Inc. joint venture and your equity interest in Genentech at your annual meeting on April 13th. Our intent is to produce definitive documents jointly working together prior to Corning's April 13th Board meeting, with signing and closing occurring the week of April 12th at a mutually convenient meeting place. With the large number of agreements and documents involved, time is clearly of the essence!

Corning Letter
 March 25, 1982
 Page Two

Initial \$20 Million Investment

It was our understanding after the March 16 meeting that essentially the only open issue on Corning's proposed initial \$20 million investment was price. We believe that we had both reached agreement on four purchase dates in \$5 million installments for the \$20 million investment, as follows:

<u>Purchase Date</u>	<u>Aggregate Purchase Price</u>
April 15, 1982	\$5,000,000
February 1, 1983	5,000,000
May 1, 1983	5,000,000
February 1, 1984	5,000,000

We understand that Corning's commitment on the \$20 million investment would be irrevocable, the only condition releasing Corning from the obligation of investing in the latter three installments being that Genentech is in bankruptcy proceedings or liquidation. As to price, we understood your best offer to be a flat price of \$35 per share for all four installments, \$35 being the approximate average market price of Genentech's Common Stock over the four-month period ending with mid-March 1982. We requested an increase in price for the last three installments, to give recognition to the time cost of money and to give Corning an incentive to invest early if its cash liquidity significantly improved. After negotiating, you indicated that Corning does not wish to consider any price increase over the \$35 per share flat price.

We have decided to accept your \$35 offer, contingent upon Corning's willingness to accelerate the installments if Corning sells its interest in Owens-Corning Fiberglass Corporation in a manner which substantially improves Corning's cash liquidity position prior to any installments becoming due. We understand that Corning's current cash liquidity position does not allow you to invest \$20 million immediately, but feel that if this situation is materially improved, we request that you agree to accelerate the investment.

Further Investments

In the course of the March 16 meeting, we asked for firm commitments from Corning beyond the initial \$20 million, but understood from you that Corning is not in a position to give such a commitment. Corning and Genentech agree, however, that additional investments by Corning in Genentech would be desirable for both parties.

Corning Letter
 March 25, 1982
 Page Three

We understand from you that Corning is interested in having the opportunity eventually to purchase more than 20% of Genentech's stock in order that Corning may account for its investment in Genentech on the equity method. Genentech is interested in planning any investments by Corning far enough in advance so that Genentech will have ample time to arrange for its financing needs if Corning does not desire to provide for them.

Although you originally sought an "option" from Genentech, Genentech is not willing to formally commit to sell stock to Corning until Corning is in a position to formally commit to buy the stock. An option, from Genentech's point of view, might benefit Corning but we do not see it benefitting Genentech. Genentech would have no assurance that its capital needs would be met and the option would constitute an overhang on Genentech's equity which could only have a depressing effect on the market price of its stock. We do not feel that such a one-sided arrangement is in the spirit of the mutually beneficial relationship on which we are embarking.

As a result, we proposed a series of decision dates, by which Corning would decide whether it wanted to invest in Genentech during the ensuing period. More specifically, the following dates and investment periods, designed to meet Genentech's primary capital needs and Corning's cash flow availability were proposed as follows:

<u>Commitment Dates</u>	<u>Investment Made in Equal Installments in the Following Periods*</u>
March 31, 1983	Fourth Quarter 1983 First Quarter 1984 Second Quarter 1984 Third Quarter 1984
March 31, 1984	Fourth Quarter 1984 First Quarter 1985 Second Quarter 1985 Third Quarter 1985
March 31, 1985	Fourth Quarter 1985 First Quarter 1986

*Exact timing to be established on Commitment Dates.

Corning could, on any decision date or dates, commit to purchase a cumulative amount of Genentech stock which, when added to the shares,

Corning Letter
March 25, 1982
Page Four

already purchased by Corning, would give Corning more than a 20% equity interest in Genentech. There would be no penalty for Corning foregoing the opportunity to invest in one or both of the first two decision dates. Corning could still commit to purchase the entire amount on the last decision date.

If Corning obtained a 20% or greater equity interest in Genentech through the aforementioned investments, Genentech would give Corning a right to participate in Genentech's future equity financings on the same terms as other investors so that Corning could retain a 20% interest in Genentech if Corning desired to.

At the March 16 meeting, we had a very lengthy discussion of pricing further investment by Corning. It was agreed that each investment should in principle be reflected at the market price at the time of investment, more specifically defined as the average of the bid and asked (if OTC) or closing (if traded on an exchange) prices of Genentech's Common Stock for the three-month period immediately preceeding the actual purchase. For example, if on March 31, 1984, Corning committed to invest \$20 million during the ensuing period (four installments of \$5 million each commencing on November 15, 1984) the price of the third \$5 million installment (due May 15, 1985) would be the average market price of Genentech's Common Stock during February, March and April 1985.

Both Genentech and Corning expressed concern about the risk of the market price at the time of the investment being too low or high compared to original expectations. As a result, we discussed use of maximum and minimum prices (the "collar" concept). You seemed primarily interested in setting such prices at the present time. Upon reflection we do not think it is possible to reflect fair maximum and minimum prices so far in advance (almost four years as to the last investment). No one can predict market price performance that far in the future. As a result, we propose that maximum and minimum prices if used be negotiated at the time of the relevant commitment if the parties believe it appropriate in the circumstances.

Other Corning Requests

You requested standard piggyback registration rights in connection with Corning's investment and we agreed to give you substantially the same piggyback rights as we gave Lubrizol in their investment.

We also agreed to provide a formal provision for Board of Directors representation when Corning has acquired from Genentech 10% or more of Genentech's stock and for so long as Corning held at least a 10%

Corning Letter
March 25, 1982
Page Five

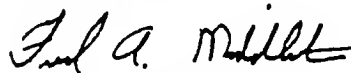
interest. Of course it is possible that Corning may be invited to participate on Genentech's Board with less than a 10% interest.

Purchase Agreement

With Peter Booth's concurrence, we have asked Lee Benton to commence preparation of a draft Stock Purchase Agreement and to work on the Shareholder's Agreement for Genencor and other related documents. We would hope to be able to forward it to you early next week if we can get quick resolution of the final open points.

Needless to say, all of us here at Genentech are looking forward to a successful conclusion to these negotiations and to commencing a long standing relationship with Corning and I look forward to speaking with you.

Sincerely,



Fred A. Middleton
Vice President
Finance and Corporate Development

0884f

cc: Chesley P.W. Booth
Richard Dulude
Robert E. Leach
Joseph C. Littleton
William C. Ughetta
Thomas J. Perkins
Robert A. Swanson
Thomas D. Kiley
Gary T. Steele
John W. Schlicher
Lee F. Benton
Kenneth L. Guernsey

Commitment Decision Dates	1982				1983				1984				1985				1986				1987															
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q												
3/31/82	5	0	0	0	5	5	0	0	5																											
3/31/83	Firm Price																																			
3/31/84					10	10	10	10	*					10	10	10	10																			
3/31/85																					<div>20% - 20% -X -X 2 2</div>															
1/01/86 (Commencement of Participation Rights)																																	159 Participation Protection at 20% (if reached) in All Future Financing			

*** Commitment Decision Subject to Collar**

**** Last Chance to Achieve Full 20% Participation**

Contact:

Nancy Suey
Corning Glass
Public Relations
(607) 974-8147

Vicki Grant
Genentech, Inc.
Public Relations
(415) 952-1000

Point San Bruno Boulevard
San Francisco, CA 94080
952-1000
9103717168

CORNING GLASS, GENENTECH TO FORM INDUSTRIAL ENZYME COMPANY

-Corning to Become Equity Investor in Genentech-

CORNING, N.Y., April 13, 1982---Corning Glass Works and Genentech, Inc. announced today that their Boards have approved an agreement to form an industrial enzyme company. The new company, Genencor, Inc. (pronounced Ja-NEN-cor), will combine genetic engineering and enzyme immobilization to produce enzymes for food processing and chemical industries.

In a related announcement, Corning Board Chairman Amory Houghton, Jr. said today at the company's annual meeting that, as part of the growing relationship between the two companies, Corning plans to become an equity investor in Genentech. Houghton said Corning will purchase \$20 million of newly-issued Genentech common stock during the next two years. The private placement of 571,000 shares at \$35.00 per share represents 6.5% of Genentech's outstanding common stock. Genentech said proceeds will be used for general corporate purposes including Genentech's contribution to the development of Genencor.

Houghton said, "the goal of the new company is to become a world leader in the development and production of enzymes for industrial applications using recombinant DNA technology".

The new company will sponsor significant new research and development activities at the laboratories of the

-M O R E-

cheese whey into food ingredients is not part of the new company's charter. This particular process is in commercialization with The Kroger Company of Cincinnati, Ohio and the Milk Marketing Board of England and Wales.

Genentech, Inc. is a leader in the application of recombinant DNA technology (commonly referred to as genetic engineering) for pharmaceutical and agricultural industries. Last year, Genentech established a Biocatalysis Department to develop industrial applications for the technology. Industrial enzyme products developed by this research group will be commercialized by Genencor.

#

Corning and Genentech to Form Company To Develop and Make Industrial Enzymes

By ANN HUGHES

Staff Reporter of THE WALL STREET JOURNAL

CORNING, N.Y.—Corning Glass Works and Genentech Inc. said they agreed to form a jointly owned company to make industrial enzymes.

Richard Dulude, Corning's senior vice president, said in an interview that each company will put about \$40 million into the new company over the next five years.

Corning, a maker of glass housewares and other consumer, electronic and technical products, also said it will buy 571,000 shares of newly issued Genentech stock, or about 6.5% of the genetic engineering company's shares outstanding, at \$35 each, for a total of \$20 million cash over the next two years. Corning also will have a representative on Genentech's board. Mr. Dulude said the company may buy more Genentech shares later.

The new company, Genencor Inc., will be based here. It will develop and make enzymes—proteins that can be used as catalysts in chemical reactions—for the food processing and chemical industries.

Mr. Dulude estimated the total U.S. market for enzymes at about \$150 million a year and the world market at about double that. The market is growing about 15% a year, he said. A small enzyme business Corning acquired last year from Rohm & Haas Co. will become a part of the joint company.

The announcement was made at Corning's annual meeting here by Amory Houghton Jr., Corning's chairman. He noted Corning already has an enzyme process for converting cheese whey (a waste product) into food ingredients that is being commercialized in Corning's joint ventures with Kroger Co. of Cincinnati and the Milk Marketing Board of England and Wales.

Mr. Dulude said Genencor products are about three years away. Corning has a history of involvement in joint ventures. They currently range from the whey conversion operations to Dow Corning Corp. in Midland, Michigan, a joint venture with Dow Chemical Co., which makes silicon products for various industries.

Genencor is Genentech's first such jointly owned company.

"I think it's a very positive move for both companies," said Mark Hassenberg, an analyst at Donaldson, Lufkin & Jenrett Securities Corp. Mr. Hassenberg said Genentech acquires from Corning the industrial expertise and access to industrial markets that it lacks. Corning, he said, gets to work more closely with Genentech researchers than it would if it only licensed Genentech technology. Corning has worked with Genentech on a contract basis.

Stephen J. McGruder, an analyst at Eberstadt Asset Management Inc., said the Genencor project is hard to evaluate initially. While Corning is "playing with one of the leaders in the field," Mr. McGruder said he isn't sure what Corning gets with its Genentech stake, since Genentech doesn't make very much money.

Genentech's profit was \$300,010, or four cents a share, on sales of \$21.3 million. Large holders of its stock include Lubrizol Inc., founders Herbert Boyer and Robert Swanson, and Wilmington Securities Inc., a company controlled by investor Henry L. Hillman.

At a presentation for securities analysts after the annual meeting, Eric Birch, a Corning vice president, said the company has developed a part-glass, part-plastic lens material called Corlon that combines the lightness of plastic with the durability and scratch-resistance of glass. Corning makes eyeglass lenses and is entering the sun-glasses business this year. Corlon lenses are expected to become available nationally by November, Corning said.

Corning reported a 47% drop in profit for the 12 weeks ended March 28, to \$12.5 million, or 59 cents a share. Sales for the period declined 8% to \$394 million.

Glass and Genentech plan a jointly owned company to make industrial enzymes, and each will put about \$40 million into the new company over the next five years.

(Story on Page B)

Wednesday, April 14, 1982

Genentech, Corning Form Joint Venture

By Harre W. Demoro

Genentech Inc., the South San Francisco genetic engineering company, yesterday announced it will form a company with Corning Glass Works to produce enzymes for food processing and chemical production.

As part of the arrangement to form Genencor Inc., Corning will buy \$20 million of newly issued Genentech common stock over the next two years. Corning has agreed to pay \$35 per share for 571,000 shares, giving it a 6.5 percent interest in Genentech.

When the company went public in October 1980, the asking price was \$35 a share. Within two days the price shot up briefly to \$89 a share. The stock, traded over the counter, was bid yesterday at 31 with an asked price of 31½.

Fluor Corp. in Orange County bought 4 percent of Genentech in 1980. Last September, a Japanese consortium that included banks and insurance companies bought 145,000 shares for about \$31 a share. One of the company's original backers, Lubrizol Corp., in Cleveland, owns about 20 percent.

According to Vicki Grant, Genentech spokeswoman, Genentech has agreed to invest some of the funds from the stock issue to

develop the new company, Genencor, which will be based initially in Corning's headquarters city, Corning, N.Y.

Grant said the companies were not disclosing how much each will own of Genencor when it is established, but that eventually each will own half.

Both Corning and Genentech have been producing enzymes, which are proteins used to speed up or cause chemical reactions.

"If it wasn't for enzymes, you'd have real cloudy wine," Grant said.

Corning, which makes glass and ceramic containers, bought its enzyme unit from Rohm and Haas Co. last year. It will become part of the new jointly owned company, Grant said.

SHAREHOLDERS' AGREEMENT

AGREEMENT made this 13th day of April, 1982, by and between GENENTECH, INC., a corporation organized and existing under the laws of the State of California having its principal place of business at 460 Point San Bruno Boulevard, South San Francisco, California 94080 ("Genentech"); CORNING GLASS WORKS, a corporation organized and existing under the laws of the State of New York having its principal office at Houghton Park, Corning, New York 14831 ("Corning"); and GENENCOR, INC., a corporation being organized under the laws of the State of Delaware having its principal office at Houghton Park, Corning, New York 14831 ("Genencor" or the "Company").

RECITALS

WHEREAS, Corning has conducted research and possesses technical information relating to Enzymes (as such term is defined in Article I) and to the immobilization of Enzymes on inert carriers;

WHEREAS, Genentech has conducted research and possesses technical information relating to genetic engineering (including recombinant DNA) and to the production of proteins;

WHEREAS, Corning and Genentech believe that genetic engineering techniques will have important application to the production of Enzymes and may result in efficiencies unavailable by other means;

WHEREAS, Corning and Genentech believe that Enzymes derived from conventional techniques and from genetic engineering techniques will find increasing use in industrial applications, and each wishes to participate in the growth of the market for Enzymes and in opportunities for using Enzymes; and

WHEREAS, Corning and Genentech believe that the development of new Enzymes and new organisms for the production of Enzymes can best be fostered and accomplished by a single corporate entity dedicated to such purposes and to the manufacture, use and sale of Enzymes (either separately or in conjunction with carriers);

NOW, THEREFORE, in consideration of the mutual promises and covenants hereinafter set forth, IT IS HEREBY AGREED AS FOLLOWS:

ARTICLE I - DEFINITIONS

As used in this Agreement, the following terms shall have the following meanings:

1.01. Enzyme. Any enzyme that is, during use in enzymatic conversion, either separate from a cell or contained in a dead cell, provided, however, that lactases shall not be considered Enzymes.

1.02. Field of Activity. The manufacture and sale of Enzymes, Immobilized Enzyme Carriers and Immobilized Enzyme Composites for uses other than those involving veterinary, diagnostic, research, medical or agricultural (including without limitation the production or growth of any plant or animal) applications, as well as use of such Enzymes, Carriers and Composites other than in such applications, provided, however, that manufacture, use and sale of trypsin inhibitor removal enzyme shall be within the Field of Activity.

Examples of activities within the Field of Activity:

- use of Enzymes in the large-scale synthesis of ammonia, whether or not used as a fertilizer.
- manufacture and sale of Enzymes for use in food processing.

Examples of activities outside the Field of Activity:

- manufacture and sale of Enzymes for pharmaceutical use, as well as manufacture of Enzyme intermediates susceptible of conversion to pharmaceutically active forms.

- use of Enzymes as herbicides, pesticides or as catalysts in the production of antibiotics.
- manufacture, use and sale of Enzymes for removal of bioinactivating precursors from recombinant DNA expression products comprising B-endorphin.

1.03. Immobilized Enzyme Carrier. Any inert material designed to be used as a carrier for immobilizing Enzyme.

1.04. Immobilized Enzyme Composite. Any aggregate comprising an Enzyme and an Immobilized Enzyme Carrier, including any means binding such Enzyme to such Carrier.

1.05. Investor. Genentech or Corning, or, when used in the plural, Genentech and Corning.

1.06. Party. Genentech, Corning or Genencor or, when used in the plural, Genentech, Corning and Genencor'.

1.07. Subsidiary. A corporate entity more than 50% of the voting stock of which is owned or controlled, directly or indirectly, by a Party.

ARTICLE II - FORMATION OF COMPANY

2.01. Formation. No later than one month after the date of this Agreement, the Investors shall establish, or cause to be established, Genencor, which shall be organized under the laws of the State of Delaware for the principal

purpose of manufacturing, using and selling Enzymes, Immobilized Enzyme Carriers and Immobilized Enzyme Composites within the Field of Activity. Immediately after its formation, Genencor shall become party to this Agreement.

2.02: Initial Capital. The initial capital of the Company shall consist of a total of 50,000 shares of Common Stock, each with a par value of U.S. \$.01 and the right to one vote ("Common Stock"); and 25,000 shares of 8% Non-Cumulative Convertible Preferred Stock, each with a par value of U.S. \$1.00 and no voting rights ("Preferred Stock"). The Preferred Stock shall be convertible, at the option of the holder, into Common Stock on a share-for-share basis, subject to adjustment as provided therein, and shall have such other rights, preferences and designations, and be subject to such limitations and restrictions, as are set forth in the Certificate of Incorporation of the Company.

2.03. Subscription. Corning hereby subscribes for 25,000 shares of Common Stock of the Company, and Genentech hereby subscribes for 25,000 shares of Preferred Stock of the Company. The subscription price for all shares, whether of Common Stock or Preferred Stock, shall be U.S. \$100 per share. Each Party shall pay the full subscription price for the shares subscribed by it in cash at such time or times as call for payment is made by the Board of Directors of the Company, provided that any such call shall be for an equal

number of shares of Common and Preferred Stock and shall be pro rata among stockholders.

2.04. Certificate of Incorporation. The Certificate of Incorporation of the Company shall be substantially in the form of Annex A hereto, with such changes therefrom as the Investors may mutually agree.

2.05. By-Laws. The By-Laws of the Company shall be substantially in the form of Annex B hereto, with such changes therefrom as the Investors may mutually agree.

2.06. Name and Principal Office. The corporate designation of the Company shall be "Genencor, Inc." or such other name as may be selected by the Parties. The principal office of the Company shall be provisionally located in Corning, New York.

2.07. Additional Capital. No additional capital shares may be issued by the Company except in accordance with a written agreement between Corning and Genentech. Corning and Genentech shall meet no less frequently than annually during the five years following the formation of the Company to determine the capital needs of the Company in the succeeding year and to discuss the advisability of issuing additional capital stock pro rata to their then current holdings.

2.08. Employee Incentives. The parties shall meet periodically following the formation of the Company to

determine the need of the Company to utilize equity and other incentives for its officers, employees, directors and consultants and to discuss the advisability of adopting plans or programs under which such persons could purchase the Company's stock or other securities.

ARTICLE III - MANAGEMENT

3.01. Board of Directors. The business of the Company shall be managed by a Board of Directors consisting initially of eight members. All actions by the Board of Directors shall require the affirmative vote of a majority of the directors present at a meeting at which a quorum is present, except for such action as to which a higher than majority vote is required pursuant to the provisions of this Agreement, the Certificate of Incorporation, the By-Laws or applicable law.

ARTICLE IV - OPERATIONAL PROVISION

4.01. Actions Requiring Consent of Parties. None of the actions set forth in this Section 4.01 shall be permitted by the Parties to be taken by the Company unless the Company shall have obtained the consent of both of the Investors:

- (a) The entry by the Company into any business outside the Field of Activity;
- (b) Any lending or borrowing of money in excess of U.S. \$100,000 by the Company;
- (c) The acquisition, mortgage, pledge, sale, assignment, transfer or other disposition of property having a fair market value in excess of U.S. \$100,000 or of any interest (regardless of value) in the legal or beneficial ownership of any other corporation or enterprise;
- (d) The adoption of annual capital, operating and research plans and budgets (and material modifications thereof); and
- (e) Entry by the Company into any agreement with an Investor or a Subsidiary of an Investor other than with respect to a purchase or sale of products in the ordinary course of the Company's business.

4.02. Accounting and Controls. The Parties shall cause the management of the Company to conduct the business of the Company at all times in accordance with the highest standards of business ethics and to maintain the Company's accounts in accordance with generally accepted accounting principles and, specifically, to:

- (a) make and keep books, records and accounts which, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; and
- (b) devise and maintain a system of internal accounting controls sufficient to provide reasonable assurances that (i) transactions are executed in accordance with general or specific authorizations, (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted United States accounting principles or any other criteria applicable to such statements and to maintain accountability for assets, (iii) access to assets is permitted only in accordance with general or specific authorizations, and (iv) the recorded accountability for assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences.

Each Investor and its auditors shall have full access to all such books, records and accounts of the Company.

4.03. Fiscal Year. The Company shall keep its books and accounts on the basis of a fiscal year ending on the

sunday nearest the thirty-first day of December in each year.

4.04. Auditors. The Company shall employ Price Waterhouse & Co. as the independent auditors of the Company. Such firm shall be retained in such capacity by the Company until the Parties shall have agreed upon another firm as independent auditors.

4.05. Financial and Business Information. The Parties shall cause the management of the Company to:

- (a) Present annual capital, operating and research plans and budgets (and material modifications thereof) to the Board of Directors and Investors for approval;
- (b) Make available to all members of the Board of Directors (and, where appropriate, the Investors) on a regular basis all such information as may be required to permit the Directors and/or the Investors, as the case may be, to make informed judgments with respect to such plans and budgets and all other matters of interest to them; and
- (c) provide to the Investors regular periodic financial statements showing profit and loss, cash flow, assets and liabilities and including appropriate comparisons to budgets, analyses and forecasts.

4.06. Independent Enterprise. The Company shall at all times be conducted as an independent enterprise for the profit of all shareholders, and all commercial transactions between the Company and an Investor or Subsidiary of an Investor shall be conducted on an arm's-length basis with neither granting to the other terms or conditions more favorable than would be accorded non-related third-party customers or suppliers except as the Parties may otherwise all agree prior to such transaction. It is intended that all major corporate functions, including, without limitation, finance, accounting, purchasing, research, development, production and sales will ultimately be staffed by the employees of the Company. In order to ensure that the Company will receive adequate staff services at the Company's request during the period of ten years beginning on the date of this Agreement, Corning and the Company shall enter into a Services Agreement substantially in the form attached hereto as Annex C immediately following the establishment of the Company.

ARTICLE V - LICENSE, CONTRACT RESEARCH
AND TECHNICAL ASSISTANCE

5.01. Licenses. Immediately following the establishment of the Company, the Investors shall enter into License

Agreements with the Company substantially in the forms attached hereto as Annexes D and E.

5.02. Contract Research. Immediately following the establishment of the Company, the Investors and the Company shall enter into a Research Agreement substantially in the form attached hereto as Annex F.

ARTICLE VI- FINANCING

6.01. Borrowing by the Company. The Parties contemplate that the Company will borrow money from financial institutions to finance major capital investments to the extent that such borrowings are available. Where satisfactory borrowing terms are contingent upon parent-company guarantees, each Investor will be expected to guarantee such borrowing proportionately to its equity interest in the Company, assuming full conversion of Preferred Stock. If satisfactory terms from such lenders cannot be obtained through parent-company guarantees proportionate to equity interests, Corning shall, upon request from Genentech, guarantee to such lenders the full payment of up to \$40,000,000 in amounts borrowed by the Company for major capital investments; and in such case Genentech shall guarantee to Corning the payment by the Company of Genentech's share of such borrowings and shall pay to Corning a fee calculated at the annual rate of 1% on

Genentech's share of the daily outstanding balance of such borrowing.

ARTICLE VII - EXISTING ENZYME BUSINESS

7.01. Purchase of Business. Immediately following the establishment of the Company, Corning and the Company shall enter into an agreement substantially in the form attached hereto as Annex G pursuant to which the Company shall become obligated to purchase the existing enzyme business of Corning.

ARTICLE VIII - SALE OR TRANSFER OF SHARES

8.01. No Sale or Transfer for Five Years. Neither Investor shall sell, transfer, pledge or otherwise encumber any shares of Common or Preferred Stock in the Company during the period of five years beginning on the date of this Agreement.

8.02. Desire to Sell. If after five years from the date hereof, either Investor shall desire to sell all or a part of its shares of the Company, such Investor shall first provide the other Investor with written notice of its desire to sell, including a description of the number of shares to be offered, their proposed price and the financial terms on

which they will be offered. The other Investor shall have thirty days after receipt of such notice to exercise, by mailing to such selling Investor a written notice thereof, a right of first refusal or option to purchase such shares at the price and upon financial terms offered by the selling Investor. If the other Investor exercises such right of first refusal or option to purchase, it shall have an additional period of ninety days after such exercise within which to make payment for, and take title to, such shares. If the other Investor does not exercise such right of first refusal or option to purchase, the selling Investor shall have a ninety day period in which to sell the shares at a price and upon financial terms no less favorable to the selling Investor than those specified in the selling Investor's notice to the other Investor.

8.03. Permitted Transfers. The provisions of Section 8.01 and 8.02 notwithstanding, an Investor may transfer all (but not part of) the shares held by it to any corporation which succeeds to all or substantially all of such Investor's business and properties, or which wholly owns or is wholly-owned by, such Investor; provided, however, that the transferee shall have agreed to be bound jointly with the transferring Investor by all of the terms and conditions of this Agreement.

GENENTECH CLINICAL
PARTNERS, LTD.

A Limited Partnership

\$55,600,000
Limited Partnership
Interests
Offered in Units
Of \$50,000

1982
Volume 1

DAVIS POLK & WARDWELL

1 CHASE MANHATTAN PLAZA

NEW YORK, N.Y. 10005

212-530-4000

TELEX: ITT-421341 RAPIFAX: 212-422-0238

TELECOPIER: 212-269-1975

WRITER'S DIRECT NUMBER:

530-4489

COUNSEL

LEWIS B. KAGEN
MIKEL M. ROLLYSON

SENIOR COUNSEL

D. NELSON AGAMS
S. HAZARD OILLESPIE
ANDREW Y. ROGERS
TAGGART WHIPPLE
WALLACE S. JONES

499 PARK AVENUE, NEW YORK, N.Y. 10022

TELEPHONE: 212-530-4000

1575 I STREET, N.W., WASHINGTON, D.C. 20005

TELEPHONE: 202-789-7100

4, PLACE DE LA CONCORDE, 75008 PARIS

TELEPHONE: 855. 14. 01

RESIDENT PARTNER:

HERBERT M. LDBL
RICHARD J. SANDLER

11 COPTHALL AVENUE, LONDON EC2R 7LU

TELEPHONE: 01-638-9118

RESIDENT PARTNER:

FRANCIS J. MORISON

PETER D. A. SOLBERT
WILLIAM O. TUCKER, JR.
PETER A. GATOR
JOHN P. CARROLL, JR.
WILLIAM A. KAYNOR
HENRT L. KING
RICHARD B. SMITH
EDWIN DEANE LEDNARD
BRUCE W. NICHOLS
SAMUEL F. PRYOR, III
ROBERT S. FISKE, JR.
EDWARD B. REID
PHILIP C. POTTER, JR.
JOHN I. BROKAW
JAMES F. DOLAN
RICHARD E. NDLAN
H. CARR FEROUSSON, JR.
JOHN A. CORRY
RICHARD O. SPIZZIRRI
ALLAN A. A. FLYNN
CHARLES S. HOPPIN
JOEL J. COHEN
TROLAND S. LINK
HERBERT M. LOBL
JOHN J. MCATEE, JR.
JONATHAN M. CLARK
CHRISTOPHER CROWLEY
LYDIA E. KESS
JAMES W. B. BENKARD
COLIN E. HARLEY
DANIEL F. KOLS
DONALDSON C. PILLSBURY
DAVID J. STRUPP
GUY MILLER STRUVEJOSEPH ALBOP CHUBB
JAMES WOODMAN LLOYD
BARTLETT H. McGUIRE
STEPHEN H. CASE
FRANCIS J. MORISON
FRANK S. MOSELEY
JEFFREY SMALL
ALAN D. GRANQUIST
JESSE ROBERT LOVEJOY
DAVID C. OXMAN
WILLIAM PARSONS, JR.
CHARLES S. WHITHAM, III
ARTHUR F. GOLDEN
STEVEN F. GOLDSTONE
KENNIS S. HERSCH
WINTHROP CONRAD, JR.
LOWELL GORDON HARRISS
WE F. KRDENER, III
RICHARD J. BANDLER
ROBERT F. WISE, JR.
JOHN P. COONEY, JR.
ROBERT LEE HECKART
WILLIAM S. KABLE
ODDEN N. LEWIS
BRADLEY Y. SMITH
HARLENE ALVA
PETER R. DOUGLAS
JOHN FOUHEY
CHRISTOPHER HAYER
PIERRE DE SAINT PHALLE
ROBERT J. LEVINE
JOHN J. MCCARTHY, JR.
JEROME O. SNIODER
WILLIAM E. WURTZ

April 1, 1983

Mr. Fred Middleton
Genentech, Inc.
460 Pt. San Bruno Boulevard
South San Francisco, CA 94080

Dear Mr. Middleton:

Enclosed please find the bound volume for the offering of limited partnership interests by Genentech Clinical Partners, Ltd., a Limited Partnership.

We enjoyed working with you on this offering and are looking forward to future transactions.

Sincerely,

Laura M. Rubenstein

Laura M. Rubenstein
Legal Assistant

Enclosure

OFFICE COPY

NOT FOR EXTERNAL DISTRIBUTION

Genentech, Inc.**GENENTECH CLINICAL PARTNERS, LTD.,
A Limited Partnership**

**Confidential Private
Placement Memorandum**

BEPW DEVELOPMENT CORPORATION
a wholly owned subsidiary of
BLYTH EASTMAN PAINE WEBBER
INCORPORATED**HAMBRECHT & QUIST**

THIS IS NOT AN OFFER TO SELL OR A SOLICITATION OF ANY OFFER TO BUY THE INTERESTS DESCRIBED HEREIN IN ANY JURISDICTION TO ANY PERSON TO WHOM IT IS UNLAWFUL TO MAKE SUCH AN OFFER OR SALE.

THIS OFFERING IS BEING MADE IN RELIANCE UPON AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OF 1933 FOR AN OFFER AND SALE OF SECURITIES WHICH DO NOT INVOLVE A PUBLIC OFFERING. NO PUBLIC OR OTHER MARKET WILL DEVELOP FOR THE INTERESTS. INTERESTS ARE NOT TRANSFERABLE WITHOUT THE CONSENT OF THE GENERAL PARTNER AND SATISFACTION OF CERTAIN OTHER CONDITIONS. SEE "RISK FACTORS" AND "TRANSFERABILITY OF INTERESTS". PROSPECTIVE INVESTORS SHOULD PROCEED ONLY ON THE ASSUMPTION THAT THEY MAY HAVE TO BEAR THE ECONOMIC RISK OF AN INVESTMENT IN THE INTERESTS FOR AN INDEFINITE PERIOD OF TIME.

PROSPECTIVE INVESTORS ARE NOT TO CONSTRUE THE CONTENTS OF THIS MEMORANDUM AS INVESTMENT, TAX OR LEGAL ADVICE. THIS MEMORANDUM AND THE EXHIBIT HERETO AND OTHER DOCUMENTS DELIVERED HERewith, AS WELL AS THE NATURE OF THE INVESTMENT, SHOULD BE REVIEWED BY EACH PROSPECTIVE INVESTOR, HIS INVESTMENT, TAX OR OTHER ADVISORS, OR HIS ACCOUNTANTS OR LEGAL COUNSEL.

THE INTERESTS OFFERED HEREBY HAVE NOT BEEN REGISTERED WITH OR APPROVED BY THE UNITED STATES SECURITIES AND EXCHANGE COMMISSION OR THE SECURITIES REGULATORY AUTHORITY OF CERTAIN STATES, NOR HAS SUCH COMMISSION OR THE REGULATORY AUTHORITY OF ANY STATE PASSED UPON THE ACCURACY OR ADEQUACY OF THIS MEMORANDUM. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

NO GENERAL SOLICITATION WILL BE CONDUCTED AND NO OFFERING LITERATURE OR ADVERTISING IN WHATEVER FORM WILL OR MAY BE EMPLOYED IN THE OFFERING OF THESE INTERESTS, EXCEPT FOR THIS MEMORANDUM (INCLUDING AMENDMENTS AND SUPPLEMENTS TO THIS MEMORANDUM), THE EXHIBIT HERETO AND DOCUMENTS SUMMARIZED HEREIN. NO PERSON IS AUTHORIZED TO GIVE ANY INFORMATION OR TO MAKE ANY REPRESENTATION NOT CONTAINED IN THIS MEMORANDUM OR IN THE EXHIBIT HERETO, AND, IF GIVEN OR MADE, SUCH OTHER INFORMATION OR REPRESENTATION MUST NOT BE RELIED UPON.

THE INFORMATION CONTAINED IN THIS MEMORANDUM HAS BEEN SUPPLIED BY THE GENERAL PARTNER, AND HAS BEEN INCLUDED HEREIN IN RELIANCE ON THE GENERAL PARTNER. THIS MEMORANDUM CONTAINS SUMMARIES, BELIEVED BY THE GENERAL PARTNER TO BE ACCURATE, OF CERTAIN DOCUMENTS, INCLUDING THE DOCUMENTS DESCRIBED UNDER "SUMMARY OF MATERIAL CONTRACTS" AND "SUMMARY OF THE LIMITED PARTNERSHIP AGREEMENT", SET FORTH IN THIS MEMORANDUM, BUT REFERENCE IS HEREBY MADE TO THE LIMITED PARTNERSHIP AGREEMENT, ATTACHED AS EXHIBIT A TO THIS MEMORANDUM, AND THE ACTUAL CONTRACTS, COPIES OF WHICH ARE AVAILABLE AT THE OFFICES OF GENENTECH DEVELOPMENT CORPORATION, 460 POINT SAN BRUNO BLVD., SOUTH SAN FRANCISCO, CALIFORNIA 94080, ATTENTION: MS. ANNE D. GUNDERSON, BEPW DEVELOPMENT CORPORATION, 1221 AVENUE OF THE AMERICAS, NEW YORK, NEW YORK 10020, ATTENTION: MR. STEPHEN EVANS-FREKE, OR HAMBRECHT & QUIST, 235 MONTGOMERY STREET, SAN FRANCISCO, CALIFORNIA 94104, ATTENTION: MR. PETER W. WALLACE, FOR COMPLETE INFORMATION CONCERNING THE RIGHTS AND OBLIGATIONS OF THE PARTIES THERETO. ALL SUCH SUMMARIES ARE QUALIFIED IN THEIR ENTIRETY BY THIS REFERENCE.

THIS OFFER CAN BE WITHDRAWN AT ANY TIME BEFORE CLOSING AND IS SPECIFICALLY MADE SUBJECT TO THE TERMS DESCRIBED IN THIS MEMORANDUM. THE GENERAL PARTNER AND THE SALES AGENTS RESERVE THE RIGHT TO REJECT ANY SUBSCRIPTION IN WHOLE OR IN PART OR TO ALLOT TO ANY PROSPECTIVE INVESTOR LESS THAN THE NUMBER OF UNITS SUBSCRIBED FOR BY SUCH PROSPECTIVE INVESTOR. PRIOR TO THE CONSUMMATION OF THE OFFERING, ALL SUBSCRIPTION FUNDS AND INVESTOR NOTES WILL BE DEPOSITED WITH BANK OF AMERICA NATIONAL TRUST AND SAVINGS ASSOCIATION, AS ESCROW AGENT, TO BE HELD FOR THE INVESTORS. SEE "SUBSCRIPTION PROCEDURES".

THIS MEMORANDUM HAS BEEN PREPARED SOLELY FOR THE BENEFIT OF PROSPECTIVE INVESTORS INTERESTED IN THE PROPOSED PRIVATE PLACEMENT OF THE INTERESTS AND CONSTITUTES AN OFFER ONLY IF THE NAME OF A PROSPECTIVE INVESTOR APPEARS IN THE APPROPRIATE SPACE PROVIDED ABOVE. DISTRIBUTION OF THIS MEMORANDUM TO ANY PERSON OTHER THAN SUCH PROSPECTIVE INVESTOR AND THOSE PERSONS RETAINED TO ADVISE HIM WITH RESPECT THERETO IS UNAUTHORIZED, AND ANY REPRODUCTION OF THIS MEMORANDUM, IN WHOLE OR IN PART, OR THE DIVULGENCE OF ANY OF ITS CONTENTS, WITHOUT THE PRIOR WRITTEN CONSENT OF THE GENERAL PARTNER, IS PROHIBITED. EACH PROSPECTIVE INVESTOR, BY ACCEPTING DELIVERY OF THIS MEMORANDUM, AGREES TO RETURN IT AND ALL OTHER DOCUMENTS TO EITHER SALES AGENT AT THEIR RESPECTIVE ADDRESSES SPECIFIED ABOVE, IF THE PROSPECTIVE INVESTOR DOES NOT INTEND TO SUBSCRIBE FOR THE PURCHASE OF THE INTERESTS, THE PROSPECTIVE INVESTOR'S SUBSCRIPTION IS NOT ACCEPTED OR THE OFFERING IS TERMINATED.

WITH REGARD TO CALIFORNIA RESIDENTS, IT IS UNLAWFUL TO CONSUMMATE A SALE OR TRANSFER OF THIS SECURITY, OR ANY INTEREST THEREIN, OR TO RECEIVE ANY CONSIDERATION THEREFOR, WITHOUT THE PRIOR WRITTEN CONSENT OF THE COMMISSIONER OF CORPORATIONS OF THE STATE OF CALIFORNIA, EXCEPT AS PERMITTED IN THE COMMISSIONER'S RULES.

WITH REGARD TO FLORIDA RESIDENTS, THE INTERESTS REFERRED TO IN THIS MEMORANDUM WILL BE SOLD TO, AND ACQUIRED BY, THE HOLDER IN A TRANSACTION EXEMPT UNDER SECTION 517.061 OF THE FLORIDA SECURITIES ACT. THE INTERESTS HAVE NOT BEEN REGISTERED UNDER SAID ACT IN THE STATE OF FLORIDA. IN ADDITION, ALL FLORIDA RESIDENTS SHALL HAVE THE PRIVILEGE OF VOIDING THE PURCHASE WITHIN THREE (3) DAYS AFTER MAKING SUCH PURCHASE.

WITH REGARD TO PENNSYLVANIA RESIDENTS, SECTION 207(m) OF THE PENNSYLVANIA SECURITIES ACT OF 1972 PROVIDES THAT ANY PURCHASER OF INTERESTS IN PENNSYLVANIA HAS THE RIGHT TO RESCIND HIS AGREEMENT TO PURCHASE UNITS OFFERED HEREBY WITHIN TWO BUSINESS DAYS AFTER THE LATER OF THE EXECUTION OF HIS SUBSCRIPTION AGREEMENT AND DELIVERY OF HIS INVESTOR NOTE AND PAYMENT OF HIS CASH CAPITAL CONTRIBUTION, AND, UPON SUCH RESCISSION, TO RECEIVE A FULL REFUND OF HIS CAPITAL CONTRIBUTION.

\$55,000,000

**GENENTECH CLINICAL PARTNERS, LTD.,
A Limited Partnership**

**1,100 Units of Limited Partnership Interests
\$50,000 Per Unit—Minimum Investment Two Units**

	<i>Price to Investors(1)</i>	<i>Selling Commissions and Investment Banking Fees(2)</i>	<i>Proceeds to Partnership(3)</i>
Minimum Investment	\$100,000	\$9,000	\$91,000
Maximum Total	\$55,000,000	\$4,950,000	\$50,050,000

- (1) The minimum investment is two Units, except that the Sales Agents named below (the "Sales Agents"), or their affiliates, may at their discretion, after consultation with Genentech Development Corporation, the general partner (the "General Partner") of Genentech Clinical Partners, Ltd., a Limited Partnership (the "Partnership"), and a wholly owned subsidiary of Genentech, Inc. ("Genentech"), make sales consisting of a single Unit, or a single Unit and a partial Unit. Sales of partial Units will be made on the same terms as sales of single Units.
- (2) The limited partnership interests offered hereby (the "Class A Limited Partnership Interests" or the "Interests") will be offered and sold on a "best efforts" basis exclusively through the Sales Agents, or their affiliates, and, at the discretion of the Sales Agents, or their affiliates, after consultation with the General Partner, through one or more selected dealers ("Selected Dealers"). The Sales Agents, or their affiliates, will receive from the Partnership selling commissions aggregating up to 7% and investment banking fees aggregating 2% of the aggregate amount of the Units sold to investors ("Investors" or "Class A Limited Partners"). The actual selling commissions payable to the Sales Agents, or their affiliates, may vary according to the number of Units purchased by each Investor. Sales of Interests, aggregating not more than \$1,000,000, may be made to certain directors, officers or employees of Genentech, who are qualified investors, without the payment by the Partnership of any selling commissions. Medical Investors Corporation (the "Class B Limited Partner") holds a limited partnership interest in the Partnership (the "Class B Interest"). The Class B Limited Partner is jointly owned by the Sales Agents, or their affiliates. For information relating to amounts payable to the Class B Limited Partner, see "Summary of Material Contracts" and "Summary of The Limited Partnership Agreement".
- (3) Before deducting expenses related to this offering, payable by the Partnership, estimated to be approximately 1 - 1½% of the aggregate purchase price of the Interests.

THE PURCHASE OF THESE INTERESTS WILL ENTAIL A HIGH DEGREE OF RISK. NO PERSON SHOULD INVEST IN THESE INTERESTS WHO IS NOT IN A POSITION TO LOSE HIS ENTIRE INVESTMENT. SEE "RISK FACTORS". INVESTORS WILL BE REQUIRED TO MAKE REPRESENTATIONS WITH RESPECT TO THEIR NET WORTH AND INCOME AND TO REPRESENT, AMONG OTHER THINGS, THAT THEY ARE FAMILIAR WITH AND UNDERSTAND THE TERMS OF THIS OFFERING. SEE "SUITABILITY STANDARDS" AND "SUBSCRIPTION PROCEDURES".

BEPW DEVELOPMENT CORPORATION
a wholly owned subsidiary of

BLYTH EASTMAN PAINE WEBBER
INCORPORATED

HAMBRECHT & QUIST

The date of this Memorandum is October 11, 1982.

GLOSSARY OF TECHNICAL TERMS

<i>Adjunctive</i>	To be added to another.
<i>Cachexia</i>	A life threatening condition in which the body rapidly consumes its own protein due to a severe metabolic imbalance; also known as wasting away syndrome.
<i>Constitutionally Delayed Short Stature or CDSS</i>	A medical condition in which a child has a lower than average growth rate for no currently identifiable cause.
<i>Cytotoxic</i>	Lethal to all living cells.
<i>DNA</i>	The chemical carrying the hereditary material of most living organisms.
<i>Disease state</i>	A medical condition resulting in an unhealthy individual.
<i>Efficacy</i>	Effective for intended use.
<i>FDA</i>	United States Food & Drug Administration.
<i>hGH</i>	Human growth hormone.
<i>Hypopituitary</i>	Low output/performance of the pituitary gland.
<i>Hypopituitary dwarfism</i>	Short stature resulting from a child's production of abnormally low amounts of hGH.
<i>Immune system</i>	The body's natural protective response system against infections.
<i>Immuno-potentiation</i>	An increase in the activity of the immune system.
<i>In vitro</i>	Testing performed in laboratory conditions outside of living organisms.
<i>In vivo</i>	Testing performed in living organisms.
<i>IND</i>	Investigational new drug application.
<i>Indication</i>	A set of symptoms characteristic of a particular disease state.
<i>Linear growth</i>	Growth in height and bone length.
<i>NDA</i>	New drug application.
<i>Organic cause</i>	An identified cause of a medical condition.
<i>Parenteral</i>	A route of administration into the body other than through the mouth e.g., intravenous.
<i>Plasmid</i>	A circular strand of DNA.
<i>Protocol</i>	A program of testing the effectiveness and safety of a pharmaceutical product.
<i>Recombinant</i>	The re-combination of elements in a new fashion.
<i>Syndrome</i>	A particular series of symptoms without a clear clinical cause.
<i>Topical</i>	Applied to the surface area of the skin.

INDEX

	<u>PAGE</u>
SUMMARY OF THE OFFERING	4
SUITABILITY STANDARDS	8
THE BUSINESS OF THE PARTNERSHIP	9
THE PARTNERSHIP'S DEVELOPMENT PROGRAM	9
THE PARTNERSHIP'S PRODUCT OBJECTIVES	10
THE PARTNERSHIP'S PATENT AND OTHER PROPRIETARY RIGHTS	17
MARKETING PLANS	18
DEVELOPMENT FINANCING	18
BUSINESS PLAN PRODUCT REVENUE ASSUMPTIONS	19
RISK FACTORS	20
FIDUCIARY RESPONSIBILITY OF THE GENERAL PARTNER	25
SUMMARY OF MATERIAL CONTRACTS	26
SUMMARY OF THE LIMITED PARTNERSHIP AGREEMENT	31
THE GENERAL PARTNER	37
DESCRIPTION OF GENENTECH, INC.	37
SUMMARY OF INCOME TAX CONSEQUENCES	41
SUBSCRIPTION PROCEDURES	55
TRANSFERABILITY OF INTERESTS	57
CERTAIN LEGAL MATTERS	58
REPORTS	58
SALES AGENTS	58
EXHIBIT A—Limited Partnership Agreement	

TABLES

	<u>PAGE</u>
Minimum Investment and Schedule of Payments	5
The Partnership's Development Budget	5
Potential Markets to be Addressed by the Partnership's Products	5
Business Plan Product Revenue Assumptions	5
Potential Financial Returns for \$100,000 Investment	6
Potential Markets to be Addressed by Human Growth Hormone	11
Potential Markets to be Addressed by Gamma Interferon	15
Cancer Patients in the U.S.	15
Estimated Partnership Receipts and Disbursements	18
Development Budget	19
Human Growth Hormone and Gamma Interferon Revenue Projections	19
Genentech, Inc., Statement of Operations	40
Genentech, Inc., Condensed Balance Sheet	40

SUMMARY OF THE OFFERING

The following is a summary of certain information relating to the offering that is contained elsewhere in this Memorandum and does not purport to be complete. This summary is qualified in all respects by the remainder of this Memorandum, which should be read in its entirety.

The Business of the Partnership

The Partnership intends to undertake extensive human clinical testing programs necessary to establish the efficacy and safety of human growth hormone ("hGH") and gamma interferon. These testing programs are required by the FDA before approval can be granted for marketing new human pharmaceutical products. The Partnership also plans to develop scaled-up manufacturing processes for these products and to develop alternative delivery systems.

The Partnership will hold a license for the manufacture and sale of hGH and gamma interferon as human pharmaceutical products in the United States, using recombinant DNA technology developed by Genentech. Naturally derived hGH is known to be an effective treatment for hypopituitary dwarfism, and, based on early published studies, may also have applications as treatment for other serious growth disorders and cachexia (wasting-away syndrome). Based upon limited published studies and pre-clinical work, gamma interferon may be effective as a treatment for cancers, for which there is no effective drug therapy available at present. However, existing data is extremely limited and extensive human clinical testing will be required to determine whether gamma interferon will prove effective in practice. *In vitro* studies indicate that gamma interferon has an anti-viral effect similar to the anti-viral effect of all other types of interferon. The General Partner believes that the anti-viral activity of gamma interferon may enable the product to compete in various segments of the market for treatment of serious and non-serious viruses.

Summary of Principal Risk Factors

- No assurance of efficacy of hGH or gamma interferon
- Possibility of adverse side effects
- No assurance of FDA approvals, or timing thereof
- No assurance of market acceptance for new products
- Regulation by government agencies
- Limited manufacturing and marketing experience of Genentech
- Potential competition
- No assurance of Joint Venture or purchase of Interests
- Possible need for additional funds
- Conflicts of interest between Partnership and Genentech
- Tax risks, due in part to lack of legal precedents and IRS rulings
- Very limited transferability of Interests and rights to receive payments in respect of sales of Interests

Summary of Tax Aspects

- The substantial part of Investors' payments to the Partnership should be currently deductible as research or experimental expenditures.
- Partnership income during the Joint Venture stage will be taxable as ordinary income.
- The substantial part of payments received under the Partnership Purchase Agreement should be taxable as long-term capital gain and the remainder as ordinary income.

Minimum Investment and Schedule of Payments

The minimum investment will be two units of \$50,000 each. Investors may elect to pay the purchase price for such units in five installments, as follows:

<u>Date</u>	<u>Amount Per Two Units</u>	<u>Expected Deductibility</u>
November 30, 1982	\$ 18,182	67.6%
March 15, 1983	22,727	87.8
March 15, 1984	22,727	88.6
March 15, 1985	18,182	101.1
March 15, 1986	18,182	100.5
Total	<u>\$ 100,000</u>	89.0%

The Partnership's Development Budget

See "Development Financing—Development Budget".

	<u>(In Millions)</u>					
	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>Total</u>
Research:						
Applied	\$ 0.9	\$ 1.4	\$ 0.8	\$ 0.1	\$ —	\$ 3.2
Clinical	2.4	6.0	10.3	11.4	5.4	35.5
Development	1.3	3.2	3.3	1.7	0.8	10.3
Total	<u>\$ 4.6</u>	<u>\$10.6</u>	<u>\$14.4</u>	<u>\$13.2</u>	<u>\$ 6.2</u>	<u>\$49.0</u>

Potential Markets to be Addressed by the Partnership's Products

See "The Partnership's Product Objectives".

<u>Disease Indication</u>	<u>Estimated Treatable Patient Population</u>	<u>Estimated Patients Receiving Treatment Three Years After Introduction</u>
Human Growth Hormone		
Hypopituitary Dwarfism	10-15,000	5,000
Other Growth Disorders	150-200,000	36,800
Cachexia	75,000	37,500
Gamma Interferon		
Cancer	1,200,000	360,000
Viral diseases	20,000,000	1,000,000

Business Plan Product Revenue Assumptions

See "Business Plan Product Revenue Assumptions—Human Growth Hormone and Gamma Interferon Revenue Projections".

	<u>(In Millions)</u>							<u>1991-98 (average annual)*</u>
	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	
Human Growth Hormone	\$ 8	\$12	\$ 61	\$107	\$190	\$210	\$222	\$260
Gamma Interferon	—	40	180	320	460	460	460	460
Totals	<u>\$ 8</u>	<u>\$52</u>	<u>\$241</u>	<u>\$427</u>	<u>\$650</u>	<u>\$670</u>	<u>\$682</u>	<u>\$720</u>

* Includes an annualized estimate for 1998.

Potential Financial Returns to Investors

If the revenue projections for hGH and gamma interferon are achieved, the financial returns to Investors could be substantial. Prospective investors should be aware, however, that the revenue projections are only estimates and there can be no assurance that they will be attained. Based on the revenue projections, potential financial returns for Investors with a maximum tax rate of 50% who invest a total of \$100,000 and elect the deferred payment option are shown in the following table. The table should be read in light of the possible tax treatment of the payments to the Class A Limited Partners for the purchase of their Interests. See "Summary of Income Tax Consequences".

Potential Financial Returns for \$100,000 Investment

Year	Payment Date	Payment Amount	Potential Tax Deductions	Potential Cash Distributions	Potential Tax Savings (Taxes Payable)	Annual Net Cash Flow	Cumulative Net Cash Position
1982.....	11/30/82	\$18,182	\$12,289*	\$ —	\$ 6,145	\$(12,037)	\$(12,037)
1983.....	3/15/83	22,727	19,953	—	9,976	(12,751)	(24,788)
1984.....	3/15/84	22,727	20,133	1,267	9,433	(12,027)	(36,815)
1985.....	3/15/85	18,182	18,378	8,237	5,071	(4,874)	(41,689)
1986.....	3/15/86	18,182	18,279	40,533	(4,463)	17,888	(23,801)
1987.....	—	—	—	54,344	(12,269)	42,075	18,274
1988.....	—	—	—	63,645	(15,596)	48,049	66,323
1989.....	—	—	—	57,833	(15,216)	42,617	108,940
1990.....	—	—	—	26,098	(7,222)	18,876	127,816
1991.....	—	—	—	36,171	(10,504)	25,667	153,483
1992.....	—	—	—	36,804	(11,131)	25,673	179,156
1993.....	—	—	—	37,229	(11,655)	25,574	204,730
1994.....	—	—	—	37,229	(12,009)	25,220	229,950
1995.....	—	—	—	37,680	(12,480)	25,200	255,150
1996.....	—	—	—	37,680	(12,773)	24,907	280,057
1997.....	—	—	—	37,680	(13,040)	24,640	304,697
1998 (6 mo.)....	—	—	—	18,840	(6,618)	12,222	316,919

* This amount may be reduced by up to \$471, unless excess offering expenses are offset by discounted commissions resulting from institutional sales.

Assumptions and Definitions Underlying Potential Investor Financial Returns

1. Investors' capital contributions will be \$55,000,000.
2. All Investors will adopt the deferred payment option and Investors' cash payments to the Partnership will occur as planned in 1982 through 1986.
3. Approximately 90% of the Investors' capital contributions will be deductible for Federal income tax purposes.
4. Each Investor will reflect in his quarterly estimated tax return the tax consequences relating to his investment in the Partnership for such quarter.

5. The Joint Venture will be formed as of January 1, 1984 and the Partnership will have, during the duration of the Joint Venture, a 22% participation in the net income of the Joint Venture.

6. Genentech will exercise its option to purchase the Class A Limited Partnership Interests on July 1, 1986. Payments in respect of such purchase will be made on a quarterly basis, beginning with the third calendar quarter of 1986, in accordance with the terms of the Partnership Purchase Agreement. Genentech will also exercise its option to purchase the Class B Interest on October 1, 1986.

7. Distributions of income earned by the Joint Venture will be taxed as ordinary income. Payments following the purchase of the Class A Limited Partnership Interests will be treated for Federal income tax purposes as capital gains, except for a portion of the payments (based on 9% annual simple interest) which will be treated as interest income and taxed at ordinary income rates.

8. There will be no effect on Investors of the Federal alternative minimum tax. However, the impact of this tax to each Investor, which will depend upon his particular tax situation, could lower the returns to him. Each Investor should consult his own tax advisor to determine the applicability to him of this tax.

9. No effect has been given to state and local income taxes.

Joint Venture Agreement

Upon FDA approval for the first of the Partnership's products, Genentech may enter into a joint venture (the "Joint Venture") with the Partnership, pursuant to a joint venture agreement (the "Joint Venture Agreement"), to manufacture and market all of the Partnership's products, as they are approved by the FDA. Genentech would be paid by the Joint Venture for manufacturing and marketing the products and administering the Joint Venture. While the Joint Venture Agreement remains in force, the Partnership will receive 22% of the Joint Venture's profits and losses.

Partnership Purchase Agreement

Upon the earlier of (a) the Joint Venture having been in existence for at least four years and (b) the Partnership having received an amount equal to 15% of the aggregate capital contributions made by Class A Limited Partners (\$8.25 million) in Joint Venture profits and the Joint Venture having been in existence for at least two years, Genentech has the option to purchase the Interests. If this option is exercised, the consideration will be as follows: (i) an advance payment of an amount equal to 10% of the aggregate capital contributions made by the Class A Limited Partners (\$5.5 million) (which is credited against future payments); and (ii) quarterly payments representing the following percentages of all hGH and gamma interferon sales: 7% (3½% in the first quarter) of revenues until total payments (including the advance payment) of \$55 million; and then 5% of revenues until total payments (including the advance payment) of \$110 million; and then 3% of revenues until June 30, 1998.

Furthermore, Genentech has agreed to make quarterly payments of at least \$1 million for the first 12 quarters following the date on which the Interests are purchased, if there are any sales of hGH or gamma interferon in such quarters. Payments to the Class A Limited Partners will be reduced by 5% each quarter, which will be paid to the Class B Limited Partner if Genentech exercises its option to purchase the Class B Interest, after the Class A Limited Partners receive 100% of their original investment.

Genentech will have the right at any time to make offers to buy out the remaining payment obligations for stock, cash or other consideration. If at any time any offer shall have been accepted by 80% of Class A Limited Partners, Genentech has the right to buy out the remaining Class A Limited Partners and the Class B Limited Partner in accordance with a pre-determined formula. See "Summary of Material Contracts—Partnership Purchase Agreement".

SUITABILITY STANDARDS

The Interests will be offered and sold only to prospective investors who: (a) represent, among other things, that they are acquiring Interests for their own accounts, for investment only and not with a view toward the resale or distribution thereof, and that they are aware that the Interests have not been registered under the Securities Act of 1933 (the "Act") and that their transfer rights are restricted by the Act, applicable State securities laws, the Limited Partnership Agreement dated as of October 1, 1982 (the "Partnership Agreement") and the absence of a market for the Interests; and (b) are investors meeting the suitability standards hereinafter set forth.

The Partnership will require as a general Investor suitability standard that each Investor represent in writing that: (1) he is a director or executive officer of the General Partner, or (2) he is purchasing at least \$150,000 of the Interests, where his total purchase does not exceed 20 per cent of his net worth at the time of sale, or joint net worth with his spouse, or (3) he is a natural person who has a net worth or joint net worth with his spouse exceeding \$1,000,000 at the time of his purchase, or (4) he is a natural person who had an individual income in excess of \$200,000 in each of the two most recent years and who reasonably expects an income in excess of \$200,000 in the current year, or (5) it is either (a) a bank as defined in section 3(a)(2) of the Act whether acting in its individual or fiduciary capacity, (b) an insurance company as defined in section 2(13) of the Act, (c) an investment company registered under the Investment Company Act of 1940 or a business development company as defined in section 2(a)(48) of such Act, (d) a Small Business Investment Company licensed by the U.S. Small Business Administration under section 301(c) or (d) of the Small Business Investment Act of 1958 or (e) an employee benefit plan within the meaning of Title I of the Employee Retirement Income Security Act of 1974; if the investment decision is made by a plan fiduciary, as defined in section 3(21) of such Act, which plan fiduciary is either a bank, insurance company or registered investment advisor or if the employee benefit plan has total assets in excess of \$5,000,000, or (6) it is a private business development company as defined in section 202(a)(22) of the Investment Advisers Act of 1940, or (7) it is a corporation, partnership or trust, and each and every equity owner of such entity certifies that he meets the qualifications set forth in either (3), (4), (5) or (6) above. As used in this Memorandum, the term "net worth" means the excess of total assets over total liabilities. In determining income, an Investor should add to his adjusted gross income any amounts attributable to tax exempt income received, losses claimed as a limited partner in any limited partnership, deductions claimed for depletion, contributions to an IRA or Keogh retirement plan, alimony payments, and any amount by which income from long-term capital gains has been reduced in arriving at adjusted gross income.

The suitability standards referred to above represent minimum suitability requirements for prospective investors and the satisfaction of such standards by a prospective investor does not necessarily mean that the Interests are a suitable investment for such prospective investor. The General Partner or either Sales Agent, or its affiliate, may make or cause to be made such further inquiry and obtain such additional information as it deems appropriate with regard to the suitability of prospective investors. The General Partner or either Sales Agent, or its affiliate, may reject subscriptions, in whole or in part, in its absolute discretion. If this offering is oversubscribed, the General Partner will determine which subscriptions shall be accepted.

THE SUITABILITY STANDARDS DISCUSSED ABOVE REPRESENT MINIMUM SUITABILITY STANDARDS FOR PROSPECTIVE INVESTORS. EACH PROSPECTIVE INVESTOR SHOULD DETERMINE WHETHER AN INVESTMENT BY SUCH INVESTOR IN THE INTERESTS IS APPROPRIATE.

The human p
binant I
related I
derived
may be
away sy
immune
others, I
to incre

Bo
body, a
substan
supply
microo
produc

H
techno
Gamrr
has no
hGH
to perl
diseas
topica

I
ments
manu
genet

inter
expe

Pre-

tion
drug
Not
the

Res

Ph
effi
spe
Ph
en

THE BUSINESS OF THE PARTNERSHIP

The business of the Partnership will be to establish through clinical testing the safety and efficacy, as human pharmaceutical products, of hGH and gamma interferon, produced by means of Genentech's recombinant DNA technology, to continue the development of scaled-up manufacturing processes, to obtain related FDA approvals, and to earn income from the sale of these products in the United States. Naturally-derived hGH is effective in the treatment of hypopituitary dwarfism and, based on early published studies, may be effective in the treatment of constitutionally delayed short stature (CDSS) and cachexia (wasting-away syndrome). Based on published studies and pre-clinical work, gamma interferon (also known as immune interferon) shows promise as a treatment for cancer and various viral diseases (including, among others, forms of herpes, hepatitis, and influenza), and is of particular interest because of its potential ability to increase the effectiveness of the body's natural immune system.

Both hGH and gamma interferon are natural substances that have important functions in the human body, and each of these substances can be isolated by purification from human cells. Isolation of these substances through purification techniques, however, is very difficult and expensive, and until recently their supply has been limited in quantity and quality. Genentech has been successful in genetically engineering microorganisms capable of producing hGH and gamma interferon and has also developed processes to produce these substances in small commercial quantities with a high degree of purity.

Human growth hormone was first produced by Genentech, in the laboratory using recombinant DNA technology, in 1979 and is currently undergoing clinical testing as a treatment for hypopituitary dwarfism. Gamma interferon was first produced using this technology by Genentech in 1981 and human clinical testing has not yet commenced. The Partnership's objectives will be (i) to complete the clinical testing program of hGH as a treatment for hypopituitary dwarfism and to extend that testing to cover CDSS and cachexia, (ii) to perform pre-clinical and clinical testing of gamma interferon with respect to a variety of cancers and viral diseases, and (iii) to develop, where feasible, alternative delivery systems for these drugs, such as oral, topical or implantable dosages, in addition to injectable forms of administration.

In addition, the Partnership will engage in applied research and development, including yield improvements, the development of alternative formulations and delivery systems, and the development of scaled-up manufacturing processes. The Partnership does not expect at present to engage in basic research related to genetic engineering.

THE PARTNERSHIP'S DEVELOPMENT PROGRAM

The work that must be done by the Partnership in order to obtain FDA approval for hGH and gamma interferon will be similar to the work involved in introducing any major new pharmaceutical product and is expected to proceed as follows.

Pre-Clinical Studies and Submission of IND

Studies are conducted in the laboratory and in different species of animals to gain preliminary information on the product's efficacy and to identify major safety problems that might be expected to arise when the drug is administered to humans. The results of these studies must be submitted to the FDA as part of a Notice of Claimed Investigational Exemption for a New Drug ("IND") before approval can be obtained for the commencement of testing in humans.

Research: Clinical Testing

The clinical testing program required for approval of a new drug involves a three-phase process. In Phase 1, studies are conducted on human volunteers to determine the basic biological activity and side effects of the substance in humans. In Phase 2, studies are conducted on groups of patients afflicted with a specific disease in order to determine proper dosages and to gain preliminary evidence of efficacy and safety. Phase 3 involves large-scale studies conducted on patients afflicted with the disease, in order to provide enough data for the statistical proof of efficacy and safety required by the FDA.

The data obtained from clinical testing, along with other information, are submitted to the FDA in order to obtain marketing approval for the product. Even after initial FDA approval has been granted, further studies may be required to provide additional data on safety or to gain approval for the use of the drug as a treatment for other indications.

Approximately 72% of the Development Budget is expected to be expended for the Partnership clinical testing program. See "Development Financing—Development Budget".

Research: Applied

The Partnership will sponsor an ongoing program of applied research to increase the production yield of hGH and gamma interferon by development of improved microorganisms using recombinant DNA technology.

In order for medical substances to be administered to human beings, they must be formulated with other active and inert ingredients (such as solvents, buffers and stabilizers) to create a stable and effective pharmaceutical product. Genentech has developed an injectable formulation for hGH which is currently being used in clinical testing, and the Partnership does not expect to devote significant resources to the refinement of that formulation. However, there is at present only an initial injectable formulation of gamma interferon, and the Partnership expects that several improvements in such formulation will be made during the course of clinical trials.

Often the need for injections tends to discourage use of the product where the disease is not serious or treatment involves a prolonged course of therapy. Accordingly, in order to reach a broader patient population, the Partnership will seek to develop alternative means of drug delivery for hGH and gamma interferon (e.g., oral, topical or implantable dosages).

Approximately 7% of the Development Budget is expected to be expended on applied research. See "Development Financing—Development Budget".

Development of Manufacturing Process

As a condition of receiving FDA approval to market a drug in the United States, the applicant must demonstrate to the satisfaction of the FDA that the process used to manufacture that drug is safe and controllable, and that it conforms with Good Manufacturing Practices established by the FDA. Approximately 21% of the net proceeds of this offering will be expended to scale-up and refine the manufacturing processes of hGH and gamma interferon.

THE PARTNERSHIP'S PRODUCT OBJECTIVES

Human Growth Hormone

The Substance

Human growth hormone is a naturally occurring human protein produced in the pituitary gland which regulates metabolism and stimulates growth. Human growth is a slow process which is completed when a child ends puberty. Human growth hormone is effective in stimulating linear growth before the end of puberty, but will not stimulate growth after puberty.

Until the development of recombinant DNA technology, hGH could be obtained only through purification of an extract from pituitary glands collected at autopsies. As a result, supplies have been limited and clinical use of hGH has been restricted to the treatment of hypopituitary dwarfism, a disorder resulting from severely low levels of hGH. Genentech can produce supplies of hGH that will be sufficient to meet anticipated market demand and will be purer than that generally obtainable from natural sources of supply. Clinical studies to date have shown safety and efficacy results similar to those of hGH derived from pituitary glands.

Clinical History; Potential Uses

Following its first successful clinical use in 1958, the small quantities of hGH available from natural resources have been used on a selective basis to treat children with demonstrable growth hormone deficiency, and it is well-established that hGH is effective in the treatment of hypopituitary dwarfism.

Early published studies suggest that hGH may be effective in the treatment of a larger population of children, including some of those with CDSS. The General Partner believes that if clinical testing shows hGH to be effective and safe for treatment of CDSS, then a major market for hGH may develop.

Another potential use of hGH is in the treatment of cachexia, a life-threatening condition occurring in many patients following major burns, severe trauma or major surgery. Cachexia is a condition in which the body rapidly consumes its own protein, due to a severe metabolic imbalance. At present, treatment for cachexia requires an invasive form of parenteral nutrition, which is used only in extreme circumstances. Early published studies indicate that hGH may increase the efficacy of such nutritional supplements in treating cachexia, thereby improving therapy while permitting the administration of smaller quantities of parenteral nutrition.

Market Analysis

The potential market for hGH for treatment of hypopituitary dwarfism is relatively well-defined, in light of the existing use of pituitary-derived material for the same purpose. Estimating potential demand attributable to CDSS and cachexia is more difficult because these indications are not adequately treated with existing drugs. The market size discussed below, and the financial projections set forth in the table under the caption "Potential Financial Returns to Investors", are based on the following critical assumptions:

1. The clinical testing will prove the product to be safe and effective in treating hypopituitary dwarfism.
2. The clinical testing will prove the product to be safe and effective in treating some cases of CDSS. Patient acceptance and the availability of third-party reimbursement will be forthcoming.
3. The clinical testing will prove the product to be safe and effective, at least as adjunctive therapy, in treating cachexia.
4. The planned process development, manufacturing scale-up work and clinical testing will be completed without major delays, enabling Genentech to be the first company to market, in the United States, hGH produced by recombinant DNA technology.
5. The product will be made available in delivery systems suitable for these three major uses, including a non-injectable form for the CDSS market.

Potential Markets to be Addressed by Human Growth Hormone

<u>Disease Indication</u>	<u>Estimated Treatable Patient Population</u>	<u>Estimated Patients Receiving Treatment Three Years after Introduction</u>
Hypopituitary dwarfism	10-15,000	5,000
Other growth disorders	150-200,000	36,800
Cachexia	75,000	37,500

Hypopituitary Dwarfism. Independent estimates indicate that there are 10,000 to 15,000 treatable patients in the United States with this condition. Due to limitations of supply, only approximately 2,500 to 3,000 of these children are currently receiving treatment. The General Partner believes that approval of the sale of hGH by the Partnership as a treatment for hypopituitary dwarfism may be achieved by the beginning of 1984, although there can be no certainty in this expectation. The General Partner further believes that within three years after such approval, it might reasonably expect to supply hGH for up to 50% of the treatable patients.

CDSS. The population of treatable CDSS patients cannot be estimated with statistical accuracy, since only limited clinical studies have been completed to date. The General Partner has made estimates which it believes to be reasonable, but these estimates should be considered much more uncertain than those related to hypopituitary dwarfism or cachexia.

The shortest 3% of the children in the United States between the ages of 5 and 15 constitute a population of approximately 1,000,000. The short stature of these children may be the result of several causes, including genetic, organic or other unidentified causes. On the basis of early published studies, the General Partner believes that approximately 150,000 to 200,000 of these children may benefit from treatment with hGH. Such benefits may include restoring children to a more normal growth pattern for their age group. For purposes of calculating potential returns to the Investors, the General Partner has assumed that an FDA approval relating to CDSS will be granted in 1986 and that within three years thereafter 20% of the treatable patients will be treated with the Partnership's product. Under the forecast, by 1989 the substantial portion of revenues realized by the Partnership from the sale of hGH will result from sales for treatment of CDSS.

Since the biological causes of CDSS are presently not well understood, FDA approval for treatment of CDSS may be delayed. In order to expedite FDA approval, a portion of the Partnership's program will include the development of statistical information, diagnostic tests and assay procedures that will facilitate understanding of the causes of CDSS. In particular, the availability of third-party reimbursement for treatment of CDSS may be dependent on the further definition and diagnosis of CDSS as a disease state.

Cachexia. Based on published sources, the General Partner estimates that approximately 100,000 patients per year are treated for cachexia. The General Partner further believes that up to 75,000 of those patients may benefit from treatment with hGH as well as nutritional supplements. Since cachexia is a life-threatening condition, it is anticipated that hGH may be rapidly accepted as a treatment for this condition if clinical trials show it to be effective. For purposes of calculating potential returns to the Investors, the General Partner has assumed that an FDA approval relating to cachexia will be granted in 1986 and that within three years thereafter approximately 50% of cachexia patients will be treated with the Partnership's product. The market for cachexia treatment could increase further if hGH proves to be sufficiently effective to allow the administration of more moderate quantities of nutrition thereby permitting therapy in less extreme cases.

Clinical Testing and Product Development

Genentech has already completed preclinical testing and Phase 1 of the clinical testing program of hGH produced by means of recombinant DNA technology. It is presently approaching the end of the first year of Phase 2 clinical testing in hypopituitary dwarfs. Because of the current scarcity of the natural hormone, the FDA Bureau of Drugs has designated hGH to receive expedited review. The General Partner anticipates completion of Phase 2 and Phase 3 testing and the receipt of product approval by the FDA for treatment of hypopituitary dwarfism by the end of 1983.

The General Partner expects to begin Phase 2 clinical testing on CDSS and cachexia patients in 1983. The complete clinical program is expected to require testing of several hundred patients. Each alternative delivery system developed will require additional rounds of Phase 1, 2 and 3 clinical testing although they may be shorter in duration.

Competition

There may be several sources of supply of hGH in the United States other than the Partnership. The first is the National Pituitary Agency ("NPA"), a government-sponsored entity, which presently distributes pituitary-derived hGH without charge to approximately 2,000 children in the United States for research and treatment of hypopituitary conditions. The second source of competition is commercial pituitary-derived hGH supplied by companies other than Genentech. The General Partner estimates that fewer than 1,000 children in the United States presently receive hGH from commercial sources.

A potential third, and most important source of competition, may come from recombinant hGH produced by other companies. Genentech has filed patent applications covering several aspects of its hGH production. The General Partner believes that its patent position may make it more difficult for competitors to manufacture and market hGH in the United States. However, Genentech is unable to predict which patents will issue and the extent of protection, if any, they will provide the Partnership. See "The Partnership's Patent and Other Proprietary Rights".

Potential competitors may have significantly greater financial, manufacturing and marketing resources than either the Partnership or Genentech. The Partnership's product strategy is to be the first to market hGH produced with recombinant DNA technology in the United States, in order to establish a strong market position before the development of generic competition. The General Partner is not aware of any company that has commenced clinical trials in the United States of hGH produced by means of recombinant DNA technology. However, should any other company enter upon clinical trials, there can be no assurance that the Partnership will receive FDA approval with a significant lead time.

Other synthetic or recombinant products with growth-promoting or metabolism-regulating effects may be developed by Genentech or by others. Commencing ten years from the first commercial sale or use of hGH by Genentech or any affiliate or licensee, KabiGen AB, a Swedish corporation, will have the non-exclusive, non-transferable right under a license agreement with Genentech to manufacture and sell products containing Genentech-developed hGH in the United States. For information concerning the circumstances under which the Partnership or the Investors would receive payments based on the sale by Genentech of such other products, see "Summary of Contractual Arrangements". Genentech has entered into licensing arrangements providing for the sale by others outside the United States of products containing hGH manufactured by Genentech.

Gamma Interferon

Interferons are proteins which are part of the body's natural immune system and are believed to help fight viral infections and cancer. Research efforts regarding interferons began with the discovery of alpha and beta interferons (Type I interferons) in 1957 and led to the premise that these natural proteins trigger anti-tumor and anti-viral mechanisms by interfering with the replication of cancer and virus cells. Gamma interferon (Type II interferon) was first discovered in 1965 and its structure was identified in 1981 when Genentech first produced the substance in the laboratory using recombinant DNA technology.

Published studies have shown that interferons exhibit anti-viral and anti-tumor activity. The extent of this activity in humans is currently under investigation. Gamma interferon has not been tested to the same extent as alpha and beta interferons, and the degree of its efficacy will not be known until extensive clinical testing has been completed. However, the General Partner believes that gamma interferon may have greater anti-tumor efficacy than either of the other interferons and that it appears to have the result of increasing the effectiveness of the body's natural immune system ("immuno-potentiating effect").

Interferons are extremely difficult and expensive to produce by extraction from human cells. Until the development of recombinant DNA technology, available supplies permitted only limited research. In addition, interferon extracted from natural sources was relatively impure. Using recombinant DNA technology, Genentech has developed a manufacturing process to produce highly pure gamma interferon in commercial quantities. Laboratory tests performed by Genentech indicate that gamma interferon, produced by means of recombinant DNA technology, exhibits generally the same properties as the protein derived from natural sources.

Using recombinant DNA technology, Genentech has successfully produced alpha and beta interferons as well as gamma interferon. Genentech has licensed its technology relating to alpha and beta interferons to Hoffman-La Roche, Inc., a major pharmaceutical company, which has received world-wide manufacturing and marketing rights for these products. Genentech will supply Hoffman-La Roche, Inc. with a portion of its marketing requirements and will receive a royalty on product sales, but will not market alpha or beta interferon itself. The Partnership will not derive any revenue from sales of alpha or beta interferon.

Potential Clinical Uses

Anti-Cancer Applications. Based on early published studies and its own pre-clinical work, the General Partner believes that gamma interferon may prove effective in a broad range of anti-cancer therapies. However, existing data is extremely limited and extensive human clinical testing will be required to determine whether gamma interferon will prove effective in practice.

The potential value of gamma interferon as a cancer therapy is best understood when the substance is compared with currently available cytotoxic drugs. These drugs, which are the active agent in current chemotherapy treatment, are toxic to all cells in the human body but are most lethal to the fastest growing cells, including rapidly-growing cancer cells. Treatment with current cytotoxic drugs does not discriminate between malignant and rapidly-growing normal cells, and therefore has serious adverse side effects, including nausea, vomiting, diarrhea, immunosuppression and, in extreme cases, congestive heart failure. These side effects of chemotherapy limit its usefulness, in part because usage of such drugs is restricted by the patient's tolerance to their toxicity. In addition, the method by which cytotoxic drugs act results in the drugs being ineffective against slow-growing tumors (such as carcinomas of the colon or lung).

In contrast, gamma interferon is a substance occurring naturally in the human body. It exhibits two types of anti-tumor activity, both of which relate to the body's own defense mechanism to combat cancer. First, gamma interferon appears to have the indirect effect of stimulating the body's natural immune system. In *in vitro* studies conducted by Genentech, gamma interferon has increased the effectiveness of white blood cells in controlling tumor cell growth. Increasing the anti-tumor action of white blood cells is important because the body's natural immune system provides a defense (though frequently unsuccessful) against a broad range of cancers, independent of their type or location within the body. Second, published reports of *in vitro* studies, and Genentech's own *in vitro* work, indicate that in addition to its indirect effect, gamma interferon works directly to inhibit the growth of tumor cells.

The Partnership also intends to explore preliminary indications that gamma interferon, when used in conjunction with other types of interferon, may provide greater anti-tumor effect than either form of interferon individually.

The anti-viral activity of gamma interferon also has important implications for its role as a cancer therapy, since patients undergoing treatment for cancer often have low resistance to viral infections. A form of cancer treatment that also counteracts viruses would be of considerable benefit to cancer patients.

For the foregoing reasons, the General Partner believes that gamma interferon, besides having the potential to be effective against certain forms of cancer cells directly, could also prove to be a widely accepted means of adjunctive therapy for use in combination with other forms of anti-cancer therapy. For example, surgery and radiation treatment can be highly effective in the elimination of specific tumor cells, and gamma interferon would not be expected to substitute directly for either of those forms of treatment to a significant extent. However, gamma interferon may prove highly effective as adjunctive therapy for a patient who is also undergoing surgery or radiation therapy, in order to attack remaining cancer cells or to bolster the body's natural immune system and provide anti-viral activity.

Anti-Viral Applications. *In vitro* studies indicate that gamma interferon has an anti-viral effect similar to the anti-viral effect of all other types of interferon. The General Partner believes that the anti-viral activity of gamma interferon may enable the product to compete in various segments of the market for treatment of serious and non-serious viruses. Serious viruses that may be susceptible to gamma interferon activity include herpes, hepatitis and viral encephalitis. Non-serious viruses that may be treatable with gamma interferon include upper respiratory infections such as influenza and the common cold, although the Partnership's business plan does not depend on penetration of the common cold market. Additional pre-clinical testing, as well as clinical testing, will be necessary to identify indications for which gamma interferon will be effective and safe, together with treatment schedules and the different effects of alpha, beta and gamma interferons.

Market Analysis

The General Partner believes that the anti-cancer and anti-viral markets may present major opportunities, although their size is extremely difficult to assess because no broadly effective therapy is now available for many of the major diseases for which gamma interferon may be used. Estimates of total market size are constructed from estimates of the number of patients in the United States currently diagnosed as having various cancers or viral diseases. The Partnership's business plan is based on the following critical assumptions:

1. The product will be safe and effective in some anti-cancer and anti-viral therapies, and will cause only moderately adverse side effects.
2. The product will be effective in the treatment of at least lung and breast cancer as well as certain major forms of leukemia and lymphoma.
3. FDA approval for the marketing of gamma interferon will be granted in 1985 with respect to the first anti-viral indication and in 1986 with respect to the first anti-cancer indication.
4. The planned process development, manufacturing scale-up work and clinical trials will be completed without major delays, enabling the Partnership to be the first to market, in the United States, gamma interferon produced by recombinant DNA technology, in order to establish a strong market position prior to the entry of any significant competition.
5. Alternative delivery systems will be developed enabling gamma interferon to penetrate the market for non-serious viral indications.

Potential Markets to be Addressed by Gamma Interferon

<u>Disease Indication</u>	<u>Estimated Treatable Patient Population</u>	<u>Estimated Patients Receiving Treatment Three Years After Introduction</u>
Cancer	1,200,000	360,000
Viral diseases	20,000,000	1,000,000

Anti-Cancer Indications. At present there is no available anti-cancer drug therapy that is effective for a broad range of applications. Accordingly, the General Partner has estimated the market for gamma interferon by considering its possible role within the overall market for anti-cancer treatment, including surgery, radiation and chemotherapy.

The following table presents the General Partner's estimate of the number of treatable cancer patients in the United States in 1982, based upon sources believed authoritative and accurate by the General Partner:

<u>Cancer Patients in the U.S.</u>	
<u>Type</u>	<u>1982</u>
Lung	194,000
Breast	169,000
Colon-Rectal	185,000
Prostate	110,000
Cervical	92,000
All Other	450,000
Total	<u>1,200,000</u>

The American Cancer Society has estimated that approximately 835,000 persons will be newly diagnosed in 1982 as having cancer, and authoritative sources estimate that at least 1,200,000 persons will receive some form of treatment for cancer during this year. Independent estimates indicate that the direct cancer costs in the United States in 1980 were approximately \$15 billion, inclusive of hospital and outpatient expenses,

physicians' fees, nursing services, home care and drugs. The indirect costs of cancer to society are estimated to be much larger.

Today only a very small portion of total direct cancer expenditures are spent on drug therapy. However, the General Partner believes that the market for anti-cancer drug therapy would expand very rapidly if an apparently effective and safe drug were available.

The General Partner estimates that by 1989, within three years of the first FDA approval of gamma interferon as a cancer therapy, the drug will be administered to 30% of the total cancer patient population in the United States. Cancer treatment would then account for a substantial percentage of the sales of gamma interferon.

Anti-Viral Indications. The anti-viral market is more difficult to assess than the anti-cancer market, since the available information is less precise and the market encompasses a greater range of serious and non-serious viral diseases. Authoritative sources indicate that approximately 20,000,000 persons per year in the United States are diagnosed as suffering from viral diseases, most of which are of a less serious nature. The General Partner believes that the total potential market for anti-viral medications exceeds \$1 billion per year. Based upon the assumptions set forth above, the General Partner estimates that gamma interferon will achieve a market share for anti-viral indications of 10% of the total potential market within three years of the first FDA approval for anti-viral treatment, which is assumed to occur in 1985.

Clinical Testing and Product Development

Genentech has performed a number of pre-clinical studies with gamma interferon produced by means of recombinant DNA technology and has developed an injectable formulation of the drug. Genentech is currently in the process of identifying patient populations and clinical investigators and developing clinical protocols for the clinical testing, which is anticipated to commence in early 1983.

The clinical program for gamma interferon will be very extensive, both for the anti-cancer and the anti-viral markets. Total numbers of patients included in the clinical programs may exceed 1,000. The initial clinical trials scheduled for 1983 will focus primarily on the anti-cancer indications and are expected to continue for a period of two to four years.

Clinical studies of the anti-viral effects of gamma interferon will begin in 1983 for the most serious and life-threatening diseases, which will probably include cytomegalovirus and various types of hepatitis. Clinical studies on less serious indications are expected to begin after safety and efficacy have been demonstrated with respect to the more serious diseases.

Competition

The anti-cancer market is presently addressed by several types of therapy, including surgery, radiation and chemotherapy. While gamma interferon may be competitive with these forms of therapy, the General Partner believes that its broad-spectrum and immuno-potentiating effect suggest that it is more likely to be used as an adjunct to these therapies than as a replacement for such forms of treatment.

Future competition in the anti-cancer market may result from significant improvements in existing therapies or the development of new therapies. The development of improved anti-cancer agents is the subject of intense scientific and commercial efforts, which may produce significant improvements in future years. Competition may result from alpha and beta interferons, which are currently in clinical testing for cancer indications. For a discussion of Genentech's licensing arrangements with Hoffman-La Roche, Inc. relating to alpha and beta interferons, see "Gamma Interferon — The Substance".

Today there are very few effective anti-viral agents on the market. Future competition may result from alpha and beta interferons, which are currently in clinical testing for viral indications. In addition, a substantial number of other anti-viral chemical compounds are presently under development and in clinical trials. The extent to which any of these compounds will prove to be safe and effective, and competitive with gamma interferon, is not known.

Potential competitors of the Partnership may include companies with financial, manufacturing and marketing resources that are significantly greater than those of the Partnership or Genentech. Additionally, Genentech itself may develop anti-cancer or anti-viral agents that treat the same indications as gamma interferon. See "Risk Factors—Conflicts of Interest". For information concerning the circumstances under which the Partnership or the Investors would receive payments based on the sale of other products by Genentech, see "Summary of Material Contracts". Genentech has entered, and may enter, into licensing and supply agreements providing for the sale outside the United States of products containing gamma interferon manufactured by Genentech.

Finally, companies other than Genentech are known to be developing gamma interferon, and there cannot be any assurance that competitors will not introduce their own version of gamma interferon into the market. Genentech has filed patent applications covering gamma interferon and its production process. The General Partner believes that its patent position may make it more difficult for competitors to manufacture and market gamma interferon in the United States. However, Genentech is unable to predict which patents will issue and the extent of protection, if any, that they will provide to the Partnership. See "The Partnership's Patent and Other Proprietary Rights".

THE PARTNERSHIP'S PATENT AND OTHER PROPRIETARY RIGHTS

Under the Cross License Agreement, Genentech has granted to the Partnership an exclusive license within the United States of all Genentech patents and know-how useful in the manufacture, use and sale of hGH and gamma interferon in the United States for human pharmaceutical use. See "Summary of Material Contracts—Cross License Agreement". The Partnership is advised that Genentech has pursued a policy of seeking patents on inventions concerning novel techniques, processes, products and microorganisms and other biological systems developed as part of its research and development activities relating to hGH and gamma interferon, as with its other products. Also, Genentech has sought diligently to protect its know-how.

With respect to hGH, Genentech has filed patent applications in the United States covering plasmids containing genes which encode hGH and methods for their construction, producing organisms and the method of production. With respect to gamma interferon, Genentech has filed a patent application in the United States covering gamma interferon, plasmids containing the genes which encode gamma interferon, producing organisms and the method of production. With respect to both hGH and gamma interferon, the General Partner expects some protection will be likely from earlier patent applications by Genentech concerning basic recombinant DNA procedures and products. Counterparts of these applications have been or are being filed extensively outside the United States.

The General Partner cannot predict what patents may ultimately be granted to the Partnership, Genentech or others, but believes that the Partnership will have sufficient patents, or be successful in obtaining sufficient licenses on reasonable terms, to permit the Partnership to develop and maintain a strong commercial position. The extent to which efforts by other researchers will result in patents or other proprietary rights and the extent to which the Partnership may need to obtain licenses from others are currently unknown.

To the extent it is advantageous to do so, the Partnership intends to protect its know-how (other than patentable inventions) as trade secrets. Such know-how will include the knowledge about hGH and gamma interferon acquired during clinical testing. Under present procedures, the results of such clinical testing submitted to the FDA will be kept confidential. Under the Cross License Agreement, the Partnership has agreed that Genentech may make such test results available to other licensees of Genentech who are authorized to sell hGH and gamma interferon outside the United States, and Genentech has agreed to make available to the Partnership the test results of such other licensees to the extent that Genentech is contractually permitted to do so. See "Summary of Material Contracts—Cross License Agreement".

MARKETING PLANS

If Genentech exercises its options to enter into the Joint Venture and to purchase the Class A Limited Partnership Interests, Genentech will market the Partnership's products. See "Summary of Major Contracts".

In view of the indications for which hGH and gamma interferon are expected to be effective, the initial sales effort for each product will be directed at a relatively small group of prescribing physicians, endocrinologists, generally based in major hospitals. To address these markets, Genentech intends to establish a relatively small sales force of specialists who will be primarily responsible for major medical centers in each particular region. Genentech would expand this sales force according to market requirements. Distribution of the products would be done either directly by Genentech or through established drug wholesalers.

Approval of gamma interferon for use in non-serious viral indications would require Genentech to expand its marketing program to contact a much larger number of physicians. Such an expanded marketing effort, which would include significant increases in promotional expenditures and sales force size, is not expected to be required prior to 1988.

Since Genentech does not presently have pharmaceutical products available for sale, it does not have a sales force. Genentech does not anticipate significant problems in the development of such a sales force or the marketing of hGH or gamma interferon.

DEVELOPMENT FINANCING

To carry out the development effort, the Partnership will contract with Genentech to perform clinical testing and other research and product development. Assuming that all of the Interests are sold, payments to Genentech will aggregate approximately \$49.0 million during the years 1982-1986. One million dollars is budgeted to be contributed by the Partnership in 1984 to the working capital of the Joint Venture. Estimated receipts and disbursements during the development phase are as shown in the following table:

Estimated Partnership Receipts and Disbursements
(In Millions)

	1982	1983	1984	1985	1986	Total
Receipts:						
Capital Contributions						
Limited Partners	\$10.0	\$12.5	\$12.5	\$10.0	\$10.0	\$55.0
General Partner	0.1	0.1	0.1	0.1	0.1	0.5
TOTAL	<u>\$10.1</u>	<u>\$12.6</u>	<u>\$12.6</u>	<u>\$10.1</u>	<u>\$10.1</u>	<u>\$55.3</u>
Disbursements:						
Selling and Organization Expenses	\$ 3.3	\$ 1.7	\$ 0.5	\$ —	\$ —	\$ 5.5
Development Agreement Payments	6.8	10.9	11.1	10.1	10.1	49.0
Joint Venture Capital	—	—	1.0	—	—	1.0
TOTAL	<u>\$10.1</u>	<u>\$12.6</u>	<u>\$12.6</u>	<u>\$10.1</u>	<u>\$10.1</u>	<u>\$55.3</u>

* This amount may be reduced by up to approximately \$250,000, unless excess offering expenses are offset by discounted commissions resulting from institutional sales.

Development Budget

(In Millions)

The General Partner has estimated the development budget over the period from October 1982 through June 1986 to include the categories of expenses shown in the following table:

	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>Total</u>
Research:						
Applied	\$0.9	\$ 1.4	\$ 0.8	\$ 0.1	\$0.0	\$ 3.2
Clinical	2.4	6.0	10.3	11.4	5.4	35.5
Development	<u>1.3</u>	<u>3.2</u>	<u>3.3</u>	<u>1.7</u>	<u>0.8</u>	<u>10.3</u>
TOTAL	<u>\$4.6</u>	<u>\$10.6</u>	<u>\$14.4</u>	<u>\$13.2</u>	<u>\$6.2</u>	<u>\$49.0</u>

BUSINESS PLAN PRODUCT REVENUE ASSUMPTIONS

The General Partner has developed a set of financial projections, which it believes have a reasonable basis, based on information currently available, as a basis for its long-term business plan for the products under development by the Partnership. These projections relate to the sale in the United States of hGH and gamma interferon produced using recombinant DNA technology. With respect to every indication except hypopituitary dwarfism, these sales projections relate to diseases and disorders for which no widely effective therapy is now available and for which projections are very difficult to develop. There can be no assurance that these projections will in fact be attained.

The revenue projections in the business plan are based upon certain marketing assumptions. For a description of such marketing assumptions, see "The Partnership's Product Objectives: Human Growth Hormone—Market Analysis; Gamma Interferon—Market Analysis". In addition to these assumptions, all projected revenues are expressed in constant 1982 dollars, and patient populations are assumed to remain constant based on estimated 1982 populations. The latter assumptions are made because the General Partner cannot predict the effect of various factors, including price levels, demographic changes and competition. Variances from the foregoing assumptions will affect the projections presented in the following table and in the table above entitled "Potential Financial Returns for \$100,000 Investment".

Human Growth Hormone and Gamma Interferon Revenue Projections

(In Millions)

<u>Year</u>	<u>Human Growth Hormone</u>	<u>Gamma Interferon</u>	<u>Total</u>
1984	\$ 8	\$ -0-	\$ 8
1985	12	40	52
1986	61	180	241
1987	107	320	427
1988	190	460	650
1989	210	460	670
1990	222	460	682
1991	238	460	698
1992	250	460	710
1993	258	460	718
1994	267	460	727
1995	267	460	727
1996	267	460	727
1997	267	460	727
1998 (6 mo.)	134	230	364

RISK FACTORS

Business Risks

No Assurance of Product Efficacy

The success of the Partnership will require, among other factors, demonstration through clinical testing that hGH and gamma interferon are safe and efficacious for the treatment of a variety of indications. Genentech has undertaken significant testing of the effects of hGH as a treatment for hypopituitarism and dwarfism, though such testing is incomplete. There has been only limited testing of hGH as a treatment for cachexia and CDSS. To date there has been no significant testing of the effects of gamma interferon when administered to humans, and the results of the *in vitro* laboratory tests of gamma interferon that have been performed are not necessarily indicative of results that will be obtained from human clinical testing.

Possible Side Effects

In some cases, molecules produced from genetically-engineered microorganisms, while virtually identical to the natural substances produced by the human body, may contain differences in composition as well as small amounts of impurities resulting from the manufacturing process, and could result in side effects when used in human treatment. Even if the marketing of hGH and gamma interferon is approved by the FDA, either or both of the products may demonstrate adverse side effects that prevent their widespread use or limit their use to only life-threatening situations.

FDA Approval; Possible Delays

The success of the Partnership will also require approval by the FDA for the marketing of hGH and gamma interferon. Genetic engineering is a new production technology and the Partnership's products will be among the first pharmaceuticals produced by means of genetically-engineered microorganisms to be considered by the FDA for marketing approval. There can be no assurance that the FDA will approve the marketing of either hGH or gamma interferon. Since the establishment of an early market position may be important to the Partnership's competitive position, any delay in obtaining FDA approvals could have a material adverse effect on the commercial success of the Partnership.

No Assurance of Commercial Success

The Partnership will achieve its business objectives only if hGH and gamma interferon are prescribed by physicians and accepted by patients. Patients may depend on third-party financing to reimburse the considerable expense of purchasing the drugs, which financing may not be available with respect to all indications for which hGH and gamma interferon may be prescribed. In particular, the availability of third-party financing for the treatment of CDSS may be dependent on the further definition and diagnosis of CDSS as a disease state.

Competition

Companies, other than the Partnership, presently produce and market pituitary-derived hGH in the United States, and other companies are known to be attempting to develop hGH and gamma interferon products using recombinant DNA technology. Other interferons are believed to have anti-tumor and anti-viral properties. Such other interferons are already in clinical testing and there can be no assurance that gamma interferon will receive FDA approval prior to another interferon product. The successful marketing of such products in the United States by competitors may adversely affect sales volume and prices realized by the Partnership's products. Although the Partnership holds various patent rights under license from Genentech, there can be no assurance that such patent rights (or other proprietary information of Genentech or the Partnership) will be effective in inhibiting competition with respect to the manufacture and sale of hGH or gamma interferon. See "The Partnership's Product Objectives".

Possible Need for Additional Funds

Although the Partnership believes that the proceeds from this offering will be sufficient to cover the clinical and other research and development of hGH and gamma interferon for a variety of indications, there can be no assurance that additional funds will not be required. In the event that Genentech does not exercise both the Joint Venture Option and the Partnership Purchase Option, the Partnership may require additional funds to manufacture and market its products. In any event, the Partnership may require additional funds and there can be no assurance that such additional funds will be available or that raising additional funds will not result in substantial reduction in the value of an Interest.

No Assurance of Joint Venture or Purchase of Interests

Genentech is not obligated to enter into the Joint Venture or, if it does enter into the Joint Venture, to exercise the Partnership Purchase Option. If it does enter into the Joint Venture and exercises its option to purchase the Interests, it is obligated to use diligence to manufacture and market hGH and gamma interferon, or, if it determines that it cannot use such diligence, to license a third party to do so. There can be no assurance, however, that Genentech will be able, despite its efforts, to manufacture or sell hGH or gamma interferon, or to license a third party to do so, thereby generating economic benefits for the Investors. If Genentech does not exercise its option to enter into the Joint Venture or to purchase the Interests, the Partnership will need to seek other ways to exploit its rights in hGH and gamma interferon. If Genentech exercises the Partnership Purchase Option and does not manufacture and market hGH and gamma interferon, there will be no amounts payable to the Investors (other than the 10% of aggregate capital contributions payable upon exercise of the Partnership Purchase Option), even though Genentech has acquired all of the Partnership's right, title and interest with respect to hGH and gamma interferon.

If Genentech does not exercise the Joint Venture Option or the Partnership Purchase Option, there may be no amounts payable to the Partnership unless the Partnership licenses or sells its rights with respect to hGH and gamma interferon to another entity and the resulting products are marketed successfully. There can be no assurance that another entity will acquire the Partnership's rights with respect to hGH or gamma interferon if Genentech does not exercise the Joint Venture Option or the Partnership Purchase Option, or that the terms of any sale or license to another entity would be as favorable as the terms set forth in the Joint Venture Agreement or the Partnership Purchase Agreement. In any event, the Partnership would not be able to market its rights to entities other than Genentech prior to expiration of the foregoing options.

Regulation by Government Agencies

The products of the Partnership are subject to approval, prior to marketing, by the FDA and certain other government agencies. There can be no assurance that such approvals will be granted to the Partnership or its licensees. If the FDA approves the sale of a product, its regulations will govern the manufacturing process and marketing activities. In addition to regulation by the FDA, the Partnership and Genentech will be subject to various environmental, safety and health regulations. The extent of adverse government regulation which might arise from future legislative or administrative action cannot be predicted.

Limited Operating History of Genentech

Genentech, which will conduct the research and development for the Partnership under the Development Agreement, has only limited experience in the development, manufacturing or marketing of pharmaceutical products and the conduct of clinical testing programs required to obtain FDA approval. While Genentech has had considerable technical success in its research activity and believes it is capable of developing into an integrated pharmaceutical company, there is no operating history upon which Investors may base an evaluation of the likely commercial performance of Genentech.

Conflicts Of Interest

The Partnership may be subject to various conflicts of interest arising from its relationship with the General Partner and its affiliates. The risk exists that such conflicts will not be resolved in the best interests of the Investors. These conflicts include:

Negotiation of Agreements

The terms of all of the agreements and arrangements between the Partnership and the General Partner or any of its affiliates were determined by negotiation between Genentech and the Sales Agents, which negotiations might not be considered to be arm's length.

Work Performed Under Development Agreement

Genentech will receive compensation from the Partnership for the research and development carried out under the Development Agreement, and the interests of the General Partner and those of the Partnership may conflict with respect to various issues concerning the testing and development of hGH and gamma interferon, including the potential conflict of interest should the research and development carried out under the Development Agreement prove to be more valuable for uses outside the United States than for uses within the United States.

Joint Venture and Partnership Purchase Option Agreement

Genentech is not obligated to exercise the Joint Venture Option or the Partnership Purchase Option and will exercise these options only if it views such exercise as being in its best interests, without regard to the best interests of the Partnership or the Limited Partners.

Operation of Joint Venture

Under the terms of the Joint Venture Agreement, Genentech will have exclusive managerial responsibility for operation of the Joint Venture and will manufacture and sell hGH and gamma interferon in the United States for the Joint Venture. Genentech may also be manufacturing hGH and gamma interferon for sale outside of the United States for its own account or for foreign licensees. If Genentech is unable to produce an adequate amount of hGH and gamma interferon to supply all of these demands, this may have an adverse effect on the Partnership. In addition, Genentech will be responsible for marketing the products of the Joint Venture, and it is anticipated that such products will be marketed by the same sales force that sells Genentech's products generally. An incentive could exist for Genentech, or for its sales personnel, to devote greater effort to the general sale of Genentech's products than would be devoted to the sale of the Joint Venture's products.

Development and Marketing of Other Products by Genentech

Genentech is engaged in ongoing research designed to produce new products, including human pharmaceutical products, using recombinant DNA techniques. New products that may be developed by Genentech in the future may compete directly or indirectly with hGH or gamma interferon. Under the Development Agreement and Partnership Purchase Agreement, the sale by Genentech of competitive products introduced to the market within a four-year period after the introduction of hGH or gamma interferon will, under certain circumstances, result in payments by Genentech to the Limited Partners. There can be no assurance that such payments, if any, would compensate the Investors adequately for the effect of such competitive sales.

Competition by the Partnership for Management Services

The Partnership will not have independent management, and it will rely on the General Partner for the operation of the Partnership. The General Partner and its personnel may have conflicts of interest in allocating management time, services and functions between the Partnership, their current activities and any future activities or business ventures in which they may become involved. The General Partner believes that it will be fully capable of discharging its responsibilities to all such competing interests.

The General Partner and its affiliates may engage for their own account, or for the account of others, in other business ventures, and, except as specifically provided in the Development Agreement and Partnership Purchase Agreement with respect to competitive products, neither the Partnership nor any Limited Partner is entitled to any interest therein. Each Sales Agent, or its affiliate, will have the right to designate one director to the board of directors of the General Partner. Such directors will participate generally in the management of the General Partner's business and will not be representing the interests of the Limited Partners.

Accounting for Transactions

Throughout the course of the relationship between Genentech and the Partnership, Genentech will be responsible for accounting for transactions that affect both it and the Partnership. For example, certain payments may accrue to the Limited Partners as a result of the sale of "combination products" which will be composed of both the Partnership's products and Genentech's products. In such cases, a subjective allocation will be made between the value contributed by each of the products.

Lack of Separate Representation

Counsel for the Partnership in connection with this offering (other than Special Tax Counsel) is also counsel to Genentech and the General Partner. The attorneys and other professionals who perform services for the Partnership may be expected to perform services for the Sales Agents, the General Partner and its affiliates, including Genentech. If a conflict arises and cannot be resolved, or the consent of the respective parties cannot be obtained to the continuance of such dual representation after full disclosure of such conflict, such professionals will withdraw from the representation of one or both of the conflicting interests with respect to the specific matter involved.

Other Risks

Restrictions on Transferability of Interests; No Market for Interests

The sale of the Interests has not been registered under the Securities Act of 1933 and the Interests may not be resold unless such sale is subsequently registered thereunder or an exemption from registration is available. The Investors have no right to require, and the Partnership has no intention to effect, such registration. Moreover, there is no existing public market or other market for the Interests and it is not anticipated that any such market will develop. The Interests will be transferable only subject to certain restrictions in the Partnership Agreement (including the consent of the General Partner, which may be withheld in its absolute discretion) and may be affected by restrictions on resales imposed by the laws of some states. See "Transferability of Interests". Consequently, Investors may not be able to liquidate their Interests in the event of emergency or for any other reason. Such factors might also limit the price which an Investor would be able to obtain for his Interest.

Restrictions on Transferability of Payment Rights; No Market for Payment Rights

If Genentech exercises the Partnership Purchase Option, the Class A Limited Partners will sell to Genentech all their right, title and interests in the Partnership in exchange for the right to receive payments based on Genentech's sales of hGH and gamma interferon ("Payment Rights") as described in "Summary of Contractual Arrangements—Partnership Purchase Agreement". Transfer of the Payment Rights requires the consent of Genentech, which may be withheld in its absolute discretion and it is not anticipated that any market will develop for their resale.

Possible Obligation To Return Distributions

The Partnership has been organized as a limited partnership and, as a general rule, no Limited Partner will be personally liable for the debts of the Partnership. However, in the event the Partnership is unable otherwise to meet its obligations, then, under California law, Limited Partners could be obligated to return cash distributions previously received by them from the Partnership, together with

interest, to the extent such distributions are deemed to constitute a return of their capital contributions or are deemed to have been paid to them wrongfully.

Summary Of Principal Federal Income Tax Risks

The Federal income tax consequences of investment in the Partnership will have a material effect on the economic consequences of the investment, and the Internal Revenue Service ("IRS") or the courts may disagree with positions taken by the Partnership as to such tax consequences. The income tax consequences of an investment in the Partnership are complex and will not be the same for all investors. Prospective investors are strongly urged to consult their own tax advisors prior to investment in the Partnership. For a more detailed discussion of the Federal income tax aspects, see "Summary of Income Tax Consequences."

Among the more significant Federal income tax risks associated with investment in the Partnership are:

No IRS Rulings

The Partnership will not seek IRS rulings as to any of the Federal income tax consequences of investment in the Partnership. Thus, positions taken by the Partnership as to tax consequences could differ from positions ultimately taken by the IRS in auditing tax returns, in issuing rulings or otherwise. While the Partnership will obtain an opinion of Davis Polk & Wardwell, Special Tax Counsel to the Partnership ("Special Tax Counsel"), as to the principal Federal income tax consequences of an investment in the Partnership, opinions of tax counsel are not binding on the IRS or the courts and there can be no assurance that the intended tax consequences of an investment in the Partnership will be realized.

Overall Recharacterization of Transactions

It is essential to the Federal income tax conclusions reached in the opinion of Special Tax Counsel referred to above that the overall form of the Partnership's and the Limited Partners' transactions be respected. The IRS could contend that Genentech (rather than the Partnership) is the true owner and developer of the Technology for tax purposes, and that the Partnership is merely providing financing to Genentech in the form of a non-recourse loan with contingent interest payments, a purchase from Genentech of a profits interest in Genentech's technology or an equity investment in Genentech. If the IRS were to succeed with such a contention, the Limited Partners would be denied the benefits of deductions under Section 174 of the Internal Revenue Code of 1954 as amended (the "Code") and probably would be denied the benefits of long-term capital gain treatment, thus significantly reducing their return. Although the Partnership would have substantial arguments in response to these possible contentions by the IRS, there can be no assurance that the IRS' position would not prevail.

Deductibility of Research and Experimental Expenses

The substantial portion of the contributions of the Limited Partners to the Partnership is expected to be used for the types of research or experimental expenditures which the General Partner and Special Tax Counsel believe will qualify as deductible expenditures under Section 174 of the Code. However, prospective investors should be aware that there is only a small body of case law and rulings dealing with the question of what specific types of expenses qualify as research or experimental expenditures within the meaning of Section 174, and most of the expenditures of the types the Partnership will incur have not been the subject of any prior cases or rulings. In addition, it is possible that the IRS may challenge the timing of anticipated research and experimental deductions because of modest disparities between the time of payments from the Partnership to Genentech and the time of corresponding expenditures by Genentech. Thus, there can be no assurance that all of the expenditures of the Partnership for development of the Technology will be currently deductible for Federal income tax purposes.

Treatment of Gain on Sale of Partnership Interests

If the Interests should be purchased by Genentech pursuant to its rights under the Partnership Purchase Option, the opinion of Special Tax Counsel, based on law on the date of that opinion, would support the

Limited Partners' filing of their Federal income tax returns on the basis that gain on that sale is long-term capital gain, subject to the specific exceptions set forth in that opinion (including the exception for stated or imputed interest, which will be ordinary income and which will increase in amount the later each payment is received), and further assuming that the Limited Partner in question has held (or is deemed to have held) his Interest more than one year. See "Summary of Income Tax Consequences". The treatment of such gain as long-term capital gain is subject to substantial uncertainty, however, because the IRS might argue that: (1) the sale of the Interests by the Limited Partners should be recharacterized for tax purposes as a sale of the Technology by the Partnership, in which case ordinary income could result if the Technology were found not to constitute capital assets or other assets potentially eligible for capital gain treatment; (2) even if the sale of the Interests by the Limited Partners is respected as such and is not so recharacterized, the "collapsible partnership" rules of Section 751 of the Code should require taxing substantially all of the gain as ordinary income, on the theory that the Technology constitutes "unrealized receivables" or "substantially appreciated inventory items" within the meaning of Section 751, because (among other possible theories) the Technology was developed solely or primarily for ultimate sale and is therefore properly held "primarily for sale to customers in the ordinary course of [the Partnership's] trade or business" or constitutes an asset the disposition of which occurs as part of the everyday operation of the Partnership's trade or business. Although the Partnership would have substantial arguments in response to each of these possible contentions by the IRS, there can be no assurance that the IRS' position would not prevail. Apart from these possible contentions, the gain could be taxable in the hands of any particular Limited Partner as ordinary gain depending, for example, on the Limited Partner's activities involving property of the type constituting the Technology or the amount of that Limited Partner's gains and losses with respect to Section 1231(b) Property.

Changes in Law

The opinion of Special Tax Counsel referred to above is based upon law in effect on the date hereof, including the Tax Equity and Fiscal Responsibility Act of 1982. There are frequent and sometimes retroactive changes in tax law, however. Regulations, rulings and interpretations of existing statutes by court decision may also change the law with retroactive effect. Therefore, there can be no assurance that there will not be adverse changes in the Code or its interpretation during the life of the investment in the Partnership which would materially and adversely affect the economic consequences of the investment.

Audit of the Partnership's Tax Returns

There is a significant possibility that the tax returns of the Partnership will be examined by the IRS. Such an examination could result in adjustments to the tax consequences initially reported by the Partnership. Although the Tax Equity and Fiscal Responsibility Act of 1982 provides generally for the determination of partnership tax issues at the partnership level, an examination by the IRS of the Partnership's tax returns could also result in audits of the Limited Partners' personal income tax returns. Any such audits could involve items not related to investment in the Partnership as well as Partnership items.

FIDUCIARY RESPONSIBILITY OF THE GENERAL PARTNER

The General Partner is under a fiduciary duty to conduct the affairs of the Partnership in the best interests of the Partnership and consequently must exercise the utmost good faith and integrity in handling Partnership affairs. Prospective investors who have questions concerning the duties of the General Partner should consult with their respective counsel.

The Partnership Agreement provides that neither the General Partner nor any of its officers, directors, or agents shall be liable to the Partnership or the Limited Partners for any act or omission based upon errors of judgment or other fault in connection with the business or affairs of the Partnership so long as the person against whom liability is asserted acted in good faith on behalf of the Partnership and in a manner reasonably believed by such person to be within the scope of its authority under the Partnership Agreement and in

the best interests of the Partnership, but only if such action or failure to act does not constitute negligence or willful misconduct. The General Partner and its officers, directors and agents will be indemnified by the Partnership to the fullest extent permitted by law for any (a) fees, costs and expenses incurred in connection with or resulting from any claim, action or demand against the General Partner, the Partnership or any of their officers, directors or agents that arise out of or in any way relate to the Partnership, its property, business or affairs and (b) such claims, actions and demands and any losses or damages resulting from such claims, actions and demands, including amounts paid in settlement or compromise (if recommended by the attorneys for the Partnership) of any such claim, action or demand; *provided* that this indemnification shall apply only so long as the person against whom a claim, action or demand is asserted has acted in good faith on behalf of the Partnership and in a manner reasonably believed by such person to be within the scope of authority under the Partnership Agreement and in the best interests of the Partnership, but only if such action or failure to act does not constitute gross negligence or willful misconduct. See "Summary of The Limited Partnership Agreement—Limitation on Liability of General Partner" and "Summary of The Limited Partnership Agreement—Indemnification of General Partner". Thus, the Limited Partners may have a more limited right of action than would otherwise be the case absent such provisions.

SUMMARY OF MATERIAL CONTRACTS

Cross License Agreement

The Partnership will enter into the Cross License Agreement with Genentech (the "Cross License Agreement") pursuant to which Genentech will grant to the Partnership an exclusive royalty-free license (with the right to grant sublicenses) to use all patent rights, know-how and biological materials now owned by Genentech or acquired by Genentech during the term of the Development Agreement to the extent they are necessary and useful in the use, including any use in connection with research and experimentation, manufacture, sale or other disposition of hGH and gamma interferon ("GI") in the United States for human pharmaceutical use in the United States (collectively, the "Technology"). Genentech will also agree to grant the Partnership the right to use all biological materials now owned by Genentech or acquired by Genentech during the term of the Development Agreement to the extent they are necessary and useful to the Partnership for the use, including any use in connection with research and experimentation, manufacture, sale or other disposition of hGH and GI in the United States for human pharmaceutical use in the United States. The Partnership will grant to Genentech an exclusive royalty-free license (with the right to grant sublicenses) to all patents and know-how produced under the Development Agreement for all purposes other than the use, including any use in connection with research and experimentation, manufacture, sale or other disposition of hGH, GI or any Formulation in the United States. The Partnership will also grant to Genentech an exclusive royalty-free license to manufacture hGH and GI in the United States for sale outside of the United States.

The Partnership will agree to use the same degree of care that it would use to protect its own confidential information of like character to keep confidential, and not disclose to third parties, all know-how and biological materials received under the Cross License Agreement from Genentech, subject to certain exceptions specified in the Cross License Agreement.

Genentech will, at the expense of the Partnership, file patent applications that are useful to protect the Technology and will use reasonable diligence to prosecute and maintain in force resultant patents. Genentech will have the right to bring patent infringement actions against third parties that infringe any of the Partnership's rights under patents licensed to the Partnership. The expenses of maintaining such actions will be shared equally by the Partnership and Genentech, and the proceeds of any judgment or settlement of any such actions (after payment of such expenses) will be paid to the Partnership. In addition, the Partnership will have the right, at its own expense, to maintain such patent infringement actions, should Genentech fail to do so. Genentech will defend any action brought against it or the Partnership alleging infringement of a United States patent of a third party by reason of the use of any of the Technology. Genentech and the Partnership will share equally the expenses of defending, and any amounts awarded or paid in respect of any judgments or settlements of, such actions.

The Cross License Agreement will only terminate upon dissolution of the Partnership, unless prior to such dissolution the Partnership has sublicensed any of its rights under the Cross License Agreement, in which case the Cross License Agreement will continue.

Development Agreement

The Partnership will enter into the Development Agreement with Genentech (the "Development Agreement") pursuant to which Genentech will agree to use its best efforts to perform research and experimentation, including research and experimentation necessary to receive FDA approval for the sale or other disposition of hGH and GI in the United States for pharmaceutical use in the United States, for which the Partnership will pay Genentech, unless the Partnership and Genentech agree otherwise, an amount equal to its expenditures on this research and development plus a retainer fee of \$3,600,000, subject to a maximum expenditure of the capital contributions of the General Partner and the Limited Partners (reduced to reflect any amounts not paid by Limited Partners defaulting in respect of their Investor Notes, if such amounts are not recovered through collection efforts or investments by new Limited Partners) less (a) \$1,000,000 to be contributed to the Joint Venture referred to below, unless the Joint Venture Option, referred to below, expires unexercised, (b) selling commissions, investment banking fees and offering and organizational costs and (c) reasonable expenses (other than amounts paid under the Development Agreement) of operating the Partnership. The first payment by the Partnership will be made within ten days of the Closing Date and will be for an amount equal to the retainer fee plus Genentech's estimate of its expenditures from December 1, 1982 through March 31, 1983. Subsequent payments will be due on March 31 of each year thereafter and will be for an amount equal to Genentech's estimate of its expenditure for the 12 months following such March 31, adjusted to reflect (i) differences between actual expenditures in prior years and estimates for such years and (ii) amounts currently in default in respect of Investor Notes.

Genentech will agree to use the same degree of care it would use to protect its own confidential information of like character in order to keep confidential, and not disclose to third parties, the Technology, subject to certain exceptions specified in the Development Agreement.

Genentech will maintain, at its own expense, liability insurance, on behalf of itself and the Partnership and will pay (to the extent not covered by insurance) all damages and costs (including costs of settlement) finally awarded or paid (except amounts up to any deductible limits on such insurance, which will be shared equally by Genentech and the Partnership) because of any product liability claim arising from the research conducted under the Development Agreement (the "Research Program"). Genentech and the Partnership shall each pay one-half of the expenses of defending against any such product liability claim.

Genentech will agree to make to the Partnership payments of a certain percentage of the revenues recognized by Genentech from the sale or other disposition, within the United States, of certain of its products that are competitive with GI or hGH and that receive FDA approval for sale within the United States for the same indication as a formulation of hGH or GI within the four-year periods commencing on the date that any formulation of hGH or GI receives its first FDA approval for sale within the United States. Such payments will be made in any year during such four-year periods if, in the previous year, unit sales of hGH or GI in the United States by Genentech, its affiliates, the Joint Venture, the Partnership or any affiliate of the Partnership, as the case may be, shall have declined.

The Development Agreement, other than the provisions relating to confidentiality, insurance and payments in respect of competitive product revenues, will terminate upon (a) expenditure of all funds made available to Genentech under the Research Program, (b) bankruptcy of either Genentech or the Partnership or (c) notice by one party after a breach of the Development Agreement by the other party. The Partnership will agree to use its best efforts to resell the Interests of any Defaulting Limited Partner and to collect any amounts in default.

Joint Venture and Partnership Purchase Option Agreement

The Partnership will enter into the Joint Venture and Partnership Purchase Option Agreement with Genentech, the Class B Limited Partner and each of the Class A Limited Partners (the "Option Agreement") pursuant to which the Partnership will grant to Genentech an option (the "Joint Venture Option"), exercisable for a period of 90 days after the date upon which Genentech receives notice that the FDA has approved at least one formulation for sale in the United States for human pharmaceutical use, to enter into a joint venture agreement (the "Joint Venture Agreement") with the Partnership pursuant to which the Partnership and Genentech will enter into a joint venture to manufacture and market within the United States hGH and GI (the "Joint Venture"). If Genentech agrees to form the Joint Venture, it will have an additional option (the "Partnership Purchase Option") to purchase the Class A Partnership Interests, exercisable for a period of 120 days after the earlier of (a) the date, after the Joint Venture shall have been in existence for not less than twenty-four (24) months, on which the Partnership shall have been distributed profits pursuant to the Joint Venture Agreement equal to 15% of the capital contributions of the Class A Limited Partners; and (b) the last day of the forty-eighth (48th) month in which the Joint Venture shall have been in existence (the "Exercise Date"); *provided* that if the Exercise Date occurs prior to the date on which all amounts payable to Genentech pursuant to the Development Agreement shall have been paid to Genentech, then such option will not be exercisable until such date.

Genentech will also have the option to purchase the Class B Interest, exercisable for a period of 90 days commencing 90 days after the date upon which Genentech exercises its option to purchase the Class A Limited Partnership Interests. If Genentech does not exercise its option to purchase the Class A Limited Partnership Interests, Genentech and the Partnership will be obligated to continue the Joint Venture until the earlier of 12 months from the expiration of Genentech's option to purchase the Class A Partnership Interests and the dissolution of the Joint Venture pursuant to the Joint Venture Agreement.

The Partnership shall not have the right to license or sell the Technology to third parties unless and until Genentech fails to exercise either the Joint Venture Option or the Partnership Purchase Option.

The Partnership will agree under the Option Agreement to undertake development of the Technology and to use its best efforts to conclude the Research Program. Subject to Genentech's rights under the Cross License Agreement and Development Agreement, Genentech will have access to the Technology only for the purpose of determining whether to exercise the options granted to it under the Option Agreement. Genentech and the Partnership will agree to consult with each other to evaluate the current state of the Technology and proposed or pending patent applications, and each will notify the other of improvements in or developments to the Technology.

The Option Agreement will terminate upon the earliest of (i) the termination unexercised of the option to form the Joint Venture, (ii) the termination unexercised of the option to purchase the Class A Limited Partnership Interests, (iii) the termination unexercised of the option to purchase the Class B Interest and (iv) the date on which Genentech purchases the Class B Interest.

Joint Venture Agreement

If Genentech exercises the Joint Venture Option, the Partnership will enter into the Joint Venture Agreement with Genentech, which will provide for the formation and conduct of the Joint Venture between Genentech and the Partnership for the purpose of manufacturing and marketing hGH and GI for sale in the United States for human pharmaceutical use in the United States. The Joint Venture will be a general partnership created under the laws of the State of California and will be located at 460 Point San Bruno Boulevard, South San Francisco, California 94080.

The Partnership will contribute to the Joint Venture: the sum of \$1,000,000, the right to use the Technology on a royalty-free basis for the term of the Joint Venture Agreement, and its agreement to provide the Joint Venture with the use of any improvements or developments to the Technology. Genentech will contribute to the Joint Venture: its agreement to make loans (which will be noninterest bearing) or additional capital contributions or to borrow, on behalf of the Joint Venture (with all interest and other amounts, except amounts in respect of principal, payable by Genentech), if and to the extent that

Genentech, as the managing venturer (the "Managing Venturer"), determines that such capital contributions or loans are required by the Joint Venture to meet its working capital requirements; and its agreement to manufacture at cost and to market hGH and GI during the term of the Joint Venture Agreement, including its agreement to make available its facilities and personnel for these purposes. In return for the foregoing, Genentech will receive reimbursement of its costs of manufacturing hGH and GI, an annual marketing fee equal to 40% of the net sales of the Joint Venture and an annual fee of 10% of such net sales as reimbursement for its costs incurred in connection with its management and administration of the Joint Venture.

Under the Joint Venture Agreement, the Partnership shall be entitled to receive 22% of the profits and losses of the Joint Venture and Genentech shall be entitled to receive 78% of such profits and losses (the "Percentages"). The management and control of the Joint Venture shall be vested solely in Genentech.

Genentech will maintain, at its own expense, liability insurance in the name of the Joint Venture, and will pay (to the extent not covered by insurance) all damages and costs (including costs of settlement) finally awarded or paid (except amounts up to any deductible limits on such insurance, which will be shared by Genentech and the Partnership in the Percentages) because of any product liability claim arising in connection with the sale or other distribution of hGH or GI. Genentech and the Partnership shall share in the Percentages the expenses of defending against any such product liability claim.

Distributable cash (cash revenues less cash expenditures not including expenditures to repay capital contributions and loans) for each quarter will be distributed to Genentech and the Partnership in the Percentages within sixty days after the end of such quarter. The Managing Venturer will agree, during the period when its option to purchase the Class A Partnership Interests is in effect, to cause the inventory of the Joint Venture to be as low as is commercially practicable.

The Joint Venture will maintain books of account that will sufficiently explain the transactions and financial position of the Joint Venture and will cause its books and other records to be kept in a manner permitting them to be properly audited. The Joint Venture's books will be kept on an accrual basis and the Joint Venture's fiscal year will be the calendar year. The Managing Venturer will send to each venturer annual reports and quarterly reports, containing financial statements (audited in the case of annual financial statements) and other information relating to the Joint Venture. The Managing Venturer will also send to each venturer tax information sufficient to enable it to prepare its Federal income tax returns. The Managing Venturer will agree to make a proper election under Section 174 of the Internal Revenue Code to treat research and experimentation expenditures as expenses which are not chargeable to capital accounts, and to deduct such expenditures as paid, on the first Federal income tax information return filed on behalf of the Joint Venture.

Subject to Genentech's rights under the Development Agreement and the Cross License Agreement, (a) Genentech shall have access to the Technology, under the Joint Venture, solely for the purposes of manufacturing and marketing hGH and GI in the United States, and for continuing, on behalf of the Joint Venture, research and development of improvements to the Technology and (b) upon termination of the Joint Venture, Genentech shall return the Technology to the Partnership.

The Joint Venture shall be dissolved (a) upon the sale to Genentech of the Class B Interest, (b) if Genentech does not exercise its option to purchase the Class A Partnership Interests during the exercise period (i) upon the sale or license of the Technology by the Partnership after 90 days notice to Genentech or (ii) upon 90 days' notice by either venturer at any time, after the expiration of a one-year period which commences after Genentech's option to purchase the Class A Limited Partnership Interests expires, (c) by operation of law, (d) upon bankruptcy of Genentech or (e) upon unanimous consent of Genentech and the Partnership.

Upon liquidation, the assets of the Joint Venture, after payment of its liabilities, shall be distributed to the venturers pursuant to applicable law. If the assets of the Joint Venture are insufficient to cover the Joint Venture's liabilities, the venturers' respective capital accounts will be charged with such amounts. If, upon

dissolution of the Joint Venture, any venturer has a negative capital account, it will be required to restore the Joint Venture the amount of such negative balance.

Partnership Purchase Agreement

If Genentech exercises its option to purchase the Class A Limited Partnership Interests (which arises if Genentech has exercised the Joint Venture Option), each Class A Limited Partner, the Class B Limited Partner and the General Partner will enter into the Partnership Purchase Agreement with Genentech (the "Partnership Purchase Agreement"), which will set forth the terms by which Genentech may purchase the Class A Limited Partnership Interests and the Class B Interest. The option to purchase the Class A Limited Partnership Interests is exercisable for a period of 120 days commencing on the Exercise Date; provided that if the Exercise Date occurs prior to the date all amounts payable to Genentech under the Development Agreement shall have been paid to Genentech, then such option will not be exercisable until such date. The option to purchase the Class B Interest is exercisable for 90 days commencing 90 days after the date upon which Genentech exercises its option to purchase the Class A Limited Partnership Interests.

If Genentech exercises the Partnership Purchase Option, it will make payments ("Payments") to each Class A Limited Partner (the "Payment Recipient") for each Payment Recipient's pro rata share of the following amounts: (a) an initial payment of 10% of the aggregate of the capital contributions to the Partnership of all Class A Limited Partners (the "Advance Payment") and (b) for each quarter, commencing with the quarter in which the date (the "Purchase Date") on which the purchase of the Class A Limited Partnership Interests falls, payments of (i) 7% (less any amounts payable to the Class B Limited Partner, referred to below) of Genentech's revenues from the sale, lease, license or other disposition of any product forming part of, or derived from, the Technology, including hGH or GI (a "Product") in the United States for human pharmaceutical use in the United States (the "Revenues") (which shall include revenues from Combined Products and revenues from competitive products, referred to below), for such quarter (except that the Payment at the end of the first such quarter, will be one-half of such amount) until each Class A Limited Partner shall have received distributions aggregating 100% of such Class A Limited Partner's capital contribution to the Partnership and thereafter (ii) 5% (less any amounts payable to the Class B Limited Partner, referred to below) of the Revenues for such quarter until each Class A Limited Partner shall have received distributions aggregating 200% of such Class A Limited Partner's capital contribution to the Partnership (the "200% Date") and thereafter (iii) 3% (less any amounts payable to the Class B Limited Partner, referred to below) of the Revenues for such quarter. Such Payments shall continue until the twelfth anniversary of the Purchase Date, unless, as of such date, the 200% Date shall not have occurred, in which case such Payments shall continue until the 200% Date or the fourth quarter of the year 2000, whichever occurs first.

For revenues from the disposition by Genentech of any product (a "Combined Product") that is comprised in part of hGH or GI and in part of another pharmaceutical product, Genentech will allocate to Revenues, which form the base for calculating the above quarterly Payments, the portion of revenues recognized on the sale or other disposition of the Combined Product which is attributable to hGH or GI. In addition, such Revenues shall also include 50% of any revenues recognized by Genentech from the sale or other disposition within the United States of certain of its products that are competitive with hGH or GI and that receive FDA approval for sale within the United States for the same indication as a formulation of hGH or GI with the four-year periods commencing on the date that any formulation of hGH or GI received its first FDA approval for sale within the United States, except that revenues recognized by Genentech for this purpose will not include revenues from Hoffman-LaRoche, Inc., in connection with sales of alpha or beta interferon or revenues from the Lederle Laboratories Division of American Cyanamid Co., in connection with sales of Herpes vaccine or Hepatitis vaccine. Payments based on competitive product revenues will be payable in any year, if, in the previous year, unit sales of hGH or GI in the United States by Genentech or its affiliates, as the case may be, shall have declined.

Notwithstanding the foregoing, Genentech is required to make a payment of \$1 million in each quarter for the first three years, so long as there are any Revenues of hGH or GI in such quarter. Genentech shall

have the right to credit such payments dollar for dollar against amounts payable in any subsequent quarters in excess of \$1 million, except that such credits shall not reduce below \$1 million payments in any quarter during the first three years. Genentech will have the right to credit the Advance Payment against amounts payable in any quarter commencing 3½ years after the Purchase Date. Such credit will be dollar for dollar against Payments attributable to Revenues in such quarter which are in excess of the average Revenues for the two quarters prior to the Purchase Date.

If Genentech exercises its option to purchase the Class B Interest, it will pay to the Class B Limited Partner for each quarter after the date on which the Class B Interest was purchased (the "Class B Purchase Date") by Genentech, commencing with the calendar quarter in which Revenues recognized after the Class B Purchase Date shall have aggregated at least \$674,269,000, 5% of the amount obtained by multiplying the above percentages, applicable in a given quarter, times the Revenues for such quarter.

The Partnership Purchase Agreement will permit Genentech to make an offer or offers to the Payment Recipients or the Class B Limited Partner to prepay Genentech's obligations to make payments to the Payment Recipients or the Class B Limited Partner. If at any time at least 80% in value of the Payment Recipients shall have accepted the terms of any such offer or offers (the "Acceptance Date"), Genentech shall have the right for a period of 30 days after the first anniversary of the Acceptance Date to prepay its obligations to make (i) payments to the Payment Recipients who have not accepted any such offer, by payment of an amount equal to three times the payment due to such Payment Recipients during the year after the Acceptance Date and (ii) payments to the Class B Limited Partner, if it shall not have accepted the terms of any offer to it, by payment of an amount equal to three times the Payments due to it during the year after the Acceptance Date.

Genentech will covenant, in the Partnership Purchase Agreement to (a) prevent dissolution of the Partnership for at least three months after the Purchase Date and (b) use diligence to manufacture and sell hGH, GI and Formulations in the United States, or if Genentech determines that it cannot reasonably use such diligence, to use its best efforts to license the Technology to a third party. The Payment Recipients and the Class B Limited Partner will not be permitted to sell or assign their rights to receive Payments without the prior written consent of Genentech, which it may withhold in its absolute discretion.

SUMMARY OF THE LIMITED PARTNERSHIP AGREEMENT

The following is a summary of certain provisions of the Partnership Agreement. The summary contained hereunder is qualified in its entirety by reference to the full text of the Partnership Agreement (which is attached to this Memorandum as Exhibit A) and to the balance of this Memorandum. The Partnership Agreement should be read in its entirety.

Partnership Capital

General. No Partner shall be entitled to interest on any capital contribution to the Partnership or on such Partner's capital account. Except as otherwise provided in the Partnership Agreement, no Partner has the right to withdraw, or to receive any return of, his capital contribution. Neither the Class B Limited Partner nor any Class A Limited Partner (collectively, the "Limited Partners") has the right to receive property other than cash in return for his capital contribution.

No Requirement For Additional Capital Contributions. The General Partner is authorized to admit Class A Limited Partners to the Partnership in the manner and subject to the conditions set forth in the Partnership Agreement. No Limited Partner shall be required or authorized to make any additional capital contributions to the Partnership. Under the Partnership Agreement, the General Partner is obligated to make capital contributions to the Partnership equal in the aggregate to at least one percent of the aggregate capital contributions of all Partners.

Allocation of Profits and Losses

Until Payout, Profits or Losses of the Partnership shall be allocated 99% to the Limited Partners in proportion to their respective capital contributions and 1% to the General Partner in proportion to its capital contribution ("capital contributions" is defined to include cash and notes given to the Partnership). After Payout, Profits of the Partnership shall be allocated 1% to the General Partner, 5% to the Class B Limited Partner, and the balance to the Class A Limited Partners, in proportion to their capital contributions. Losses shall be allocated 1% to the General Partner and 99% to the Limited Partners in proportion to their capital contributions. During each fiscal year, Losses that would otherwise be allocated to Limited Partners whose capital accounts would thereupon become negative shall be reallocated to the other Limited Partners (except the Class B Limited Partner).

The Profits or Losses of the Partnership, for any fiscal year, attributable to an interest in the Partnership that was assigned during that period shall be allocated between the assignor and the assignee based upon the length of time during such period that the interest was owned by each of them. "Profits" or "Losses" means the profits or losses of the Partnership for Federal income tax purposes, including, without limitation, each item of Partnership income, gain, loss, deduction or credit. "Payout" occurs at the time which the aggregate of all cash distributions from the Partnership to the Limited Partners (including the assignees and substituted Limited Partners but not including any Limited Partner who defaults on a payment due under his Investor Note ("a Defaulting Limited Partner")) is sufficient in amount to equal the cash delivered to the Partnership by such Limited Partners (including cash paid to the Partnership under any promissory notes of such Limited Partners).

The losses of the Partnership for any fiscal year attributable to the interest of a Defaulting Limited Partner shall be allocated among the Class A Limited Partners as if such Defaulting Limited Partner had a zero balance in his capital account. If a qualified purchaser purchases the Interest of the Defaulting Limited Partner, Profits and Losses of the Partnership attributable to such Interest, for the fiscal year in which such purchase occurs (a "Reallocation Year"), shall be allocated between the Defaulting Limited Partner and such purchaser based upon the length of time the Interest was owned by each of them. During the fiscal year following such a Reallocation Year, Losses shall be allocated to such purchaser until his capital account becomes equal in amount to the capital account the Defaulting Limited Partner would have possessed at the beginning of such fiscal year had he not defaulted.

Cash Distributions

The General Partner is required to distribute to the Partners all of the Partnership's Distributable Cash as soon as practicable after the end of any fiscal quarter, in proportion to the Partners' respective capital accounts as of the end of such fiscal quarter. Distributable Cash is defined as all cash revenues of the Partnership (other than funds received as capital contributions, loans, interest or other income earned on any temporary investment of Partnership funds, and proceeds from the sale of assets in partial or complete liquidation) in such period, less all amounts expended by the Partnership pursuant to the Partnership Agreement (not including payments made under the Development Agreement, sales commissions, investment banking fees and formation and organizational expenses of the Partnership) and less such working capital or reserves or other amounts as the General Partner reasonably determines to be necessary for the proper operation of the Partnership's business and its winding up and liquidation. The General Partner in its sole discretion may declare other funds of the Partnership to be Distributable Cash. It is anticipated that Distributable Cash will be generated principally by the sale of hGH or GI in the United States, either through the Joint Venture or otherwise.

Enforcement of Investor Notes

The Partnership Agreement gives the General Partner full power to enforce the Investor Notes held by the Partnership. If any Limited Partner fails to pay an installment under his Investor Note when due, that Limited Partner will not be entitled to any cash distributions from the Partnership during such period of default, and will be subject to the allocations of Profits and Losses set forth above. The General Partner will have the option of selling the Defaulting Limited Partner's Interest to any qualified purchaser at a sharply

discounted price, with the Defaulting Partner receiving not more than ten percent of the cash he had invested prior to his default and being relieved of his obligation under his Investor Note, and each Limited Partner irrevocably appoints the General Partner such Limited Partner's attorney-in-fact, with full power, in such Limited Partner's name, place and stead, to carry out such sale. The General Partner may also cause suit to be brought against the Defaulting Limited Partner to collect the amount due, together with interest thereon and any costs of collection.

Authority of the General Partner

The General Partner shall have exclusive management and control of the business of the Partnership, and shall have the authority, on behalf of the Partnership, to do all things which, in its sole judgment, are necessary, proper, or desirable to carry out their duties, except as the Partnership Agreement may expressly limit such powers.

Contracts with General Partner or Affiliates

The General Partner may, on behalf of the Partnership, enter into contracts with itself or its affiliates. The validity of any agreement, transaction or payment involving the Partnership and the General Partner or any of its affiliates (including those listed in Schedule C to the Partnership Agreement) shall not be affected by reason of (1) the relationship between the Partnership and the General Partner or its affiliate, or between such affiliate and the General Partner or (2) the approval of said agreement, transaction or payment by officers or directors of the General Partner.

Rights of Limited Partners to Vote and Call Meetings

The Limited Partners have no right to participate in the management or supervision of the business of the Partnership. However, the Partnership Agreement does give the Limited Partners certain voting rights, including the following:

1. The right to amend the Partnership Agreement by the affirmative vote of a majority in interest of the Limited Partners, without the consent of the General Partner, *provided* that such amendment does not (a) without the consent of each Partner to be adversely affected by the amendment, convert a Limited Partner into a General Partner, modify the limited liability of a Limited Partner, alter the Federal income tax status of the Partnership, or alter the interest of any Partner in the Profits or Losses or in the cash distributions of the Partnership, it being understood that this limitation is not intended to affect the right to vote to amend the Partnership Agreement as is necessary or appropriate to permit the issuance of additional Interests; or (b) amend any provision of the Partnership Agreement which requires the action, approval or consent of a specified percentage in interest of the Limited Partners, unless such specified percentage in interest of the Limited Partners consents to such amendment; or (c) alter any provision requiring the consent of a majority in interest of the Limited Partners to permit approval by any lesser percentage of interest of the Limited Partners.

2. The right to terminate the Partnership by the affirmative vote of a majority in interest of the Limited Partners, *provided* that such right shall exist only after all capital contributions to the Partnership agreed to be made by the Limited Partners (including all interest or other income earned thereon) have been expended, and *provided further* that no such vote shall be effective unless, prior to or concurrently with such vote, there shall have been established procedures for the assumption of the Partnership's obligations under the agreements listed on Schedule C to the Partnership Agreement and all related agreements, and there shall have been appointed an agent who shall hold such powers as are necessary for all other parties to such agreements to deal with such agent as if the agent were the sole owner of the Partnership's interest, and such procedures and agency relationship have been agreed to in writing by each of the other parties to such agreements.

3. The right to remove the General Partner upon the written consent or vote of a majority in interest of the Limited Partners. The removal of the General Partner shall not affect the validity or enforceability of the agreements listed on Schedule C to the Partnership Agreement.

4. The General Partner may not resign or withdraw from the Partnership without, among other things, obtaining the consent of a majority in interest of the Limited Partners.

5. The sale of all or substantially all of the assets of the Partnership must be approved by affirmative vote of a majority in interest of the Limited Partners.

6. Upon the removal of the General Partner, or within 90 days after the resignation or withdrawal of the General Partner in violation of the Agreement or the dissolution or bankruptcy of the General Partner, a majority in interest of the Limited Partners may, if and to the extent permitted by law, elect to carry on the business of the Partnership with one or more substituted General Partners.

Upon receipt of a written request from at least 10% in interest of the Limited Partners, the General Partner shall call a meeting of the Limited Partners. The General Partner may also call a meeting of the Limited Partners on its own initiative, or submit proposed amendments to the Limited Partners for action with their written consent.

Limitation on Liability of General Partner

Neither the General Partner nor any of its officers, directors, employees or agents shall be liable to the Partnership or the Limited Partners for any act or omission based upon errors of judgment or other fault in connection with the business or affairs of the Partnership, provided the person against whom liability is asserted acted in good faith on behalf of the Partnership and in a manner reasonably believed by such person to be within the scope of his authority under the Partnership Agreement and in the best interests of the Partnership, and *provided* that such action or failure to act does not constitute negligence or willful misconduct.

Indemnification of General Partner

The General Partner, its officers, directors, employees and agents shall be indemnified by the Partnership in respect of all (a) fees, costs and expenses incurred in connection with or resulting from any claim, action or demand against the General Partner, the Partnership or any of their officers, directors, employees or agents that arise out of or in any way relate to the Partnership, its properties, business or affairs and (b) such claim, action and demand and any losses or damages resulting from such claim, action and demand including amounts paid in settlement or compromise (if recommended by attorneys for the Partnership) of any such claim, action or demand; *provided*, however, that this indemnification shall apply only in the event the person against whom a claim, action or demand is asserted has acted in good faith on behalf of the Partnership and in a manner reasonably believed by such person to be within the scope of his authority under the Partnership Agreement and in the best interests of the Partnership, and only if such action or failure to act does not constitute gross negligence or willful misconduct.

Liability of Partners to Third Parties

The General Partner will be liable for all general obligations of the Partnership to the extent not paid by the Partnership. The Partnership Agreement provides that no Limited Partner shall be personally liable for the debts of the Partnership beyond the amount of his capital contribution and share of the undistributed profits of the Partnership. In the event the Partnership is unable otherwise to meet its obligations, the Limited Partners might, under applicable law, be obligated under certain circumstances to return, with interest, cash distributions previously received by them to the extent such distributions are deemed to constitute a return of their capital contributions or are deemed to have been wrongfully paid to them.

Partners' Independent Activities

The Partnership Agreement provides that the General Partner (as well as any Limited Partner) and any shareholder, director, employee or affiliate thereof may engage in or possess an interest in other business ventures of any nature and description, whether or not such ventures are competitive with the Partnership.

Limitations on Transferability of Interests

The Interests are subject to strict limitations upon transfer. A Limited Partner may assign his Interest to qualified investors only if certain conditions are satisfied. The assignee must meet all suitability standards and other requirements applicable to the original Investors and must consent in writing, in form satisfactory to the General Partner, to be bound by all the terms of the Partnership Agreement. Immediately after the assignment, neither the assignee nor the assignor, if the assignor retained any part of his Interest, may hold less than \$100,000 of Interest and neither may hold Interests that are not an even multiple of \$50,000. The assignor must have paid in full, in cash, his capital contribution. Counsel for the assignee must have delivered an opinion (which counsel and opinion are satisfactory to counsel for the General Partner) that such Interest may be legally sold or distributed in compliance with then-applicable state and Federal statutes. The General Partner must have consented in writing to the assignment, which consent may be withheld in its absolute discretion. In any event, no assignment may be made which, in the opinion of counsel to the Partnership, would cause a termination of the Partnership for the purposes of the Internal Revenue Code or would jeopardize the status of the Partnership as a partnership for Federal income tax purposes or would violate any applicable governmental rule or regulation including, without limitation, any applicable Federal or state securities law. Upon request of the General Partner, the assignor will pay all reasonable expenses, including attorney's fees, incurred by the Partnership in connection with the assignment of the Interest. Any purported assignment which is not in compliance with the Partnership Agreement is null and void and of no force and effect whatsoever. No assignment to a minor (except in trust or pursuant to the Uniform Gifts to Minors Act) or to an incompetent shall be effective.

Any sale or transfer of an Interest, or any interest therein, in California or involving a California resident requires the prior written consent of the Commissioner of Corporations of the State of California, except as provided in the Commissioner's Rules.

The assignee of an Interest does not become a Limited Partner by virtue of such assignment, and obtains no rights other than the right to receive, after the effective date of the assignment, distributions from the Partnership and to receive allocations of the Profits or Losses of the Partnership. An assignee of an Interest may become a substituted Limited Partner only upon the written consent of the General Partner, which may be withheld in its absolute discretion. In any event, such consent shall be given only if the assignee executes and acknowledges such instruments as the General Partner deems necessary or desirable to give effect to such substitution. The substituted Limited Partner shall pay all reasonable expenses, including attorney's fees, incurred by the Partnership in connection with such substitution of the Limited Partner.

Term and Termination

The Partnership shall continue until December 31, 2012 unless sooner terminated upon the occurrence of any one or more of the following events: (a) the passage of 90 days after dissolution or bankruptcy of the General Partner unless the Limited Partners elect to carry on the business of the Partnership; (b) the sale of all or substantially all of the assets of the Partnership, as permitted by the Partnership Agreement; (c) the affirmative vote of a majority in interest of the Limited Partners, subject to the conditions discussed above in the section on "Rights of Limited Partners to Vote and Call Meetings"; (d) termination as required by operation of law; or (e) the transfer of all of the Partnership Interests to Genentech pursuant to its exercise of the Partnership Purchase Option and its option to purchase the Class B Limited Partner Interest set forth in the Joint Venture and Partnership Purchase Option Agreement or pursuant to a vote by a majority in interest of the Limited Partners to accept a Genentech purchase offer.

Upon termination of the Partnership, the affairs of the Partnership will be wound up and all of its debts and liabilities discharged in the order of priority provided by law. The remaining assets of the Partnership will be distributed to the General Partner and the Limited Partners in proportion to their capital accounts at the time of termination. Each Partner shall receive his share of the assets in cash or in kind, and the proportion of such share that is received in cash may vary from Partner to Partner, all as the General Partner in its sole discretion may decide.

Appointment of General Partner as Attorney-in-Fact

Each Limited Partner irrevocably constitutes and appoints the General Partner such Limited Partner's true and lawful attorney-in-fact, with full power and authority in such Partner's name, place and stead to make, execute, acknowledge and file all certificates and other instruments deemed advisable by the General Partner to permit the Partnership to become or continue as a limited partnership, all instruments that effect a change or modification of the Partnership in accordance with the Partnership Agreement, all conveyances and other instruments deemed advisable by the General Partner to effect the dissolution and termination of the Partnership, and all other instruments that may be required or permitted by law to be filed on behalf of the Partnership. Each Limited Partner also irrevocably constitutes and appoints the General Partner such Limited Partner's true and lawful attorney-in-fact, with full power and authority in such Partner's name, place and stead to make and execute the Joint Venture and Partnership Purchase Option Agreement and the Partnership Purchase Agreement and to amend such agreements.

Applicable Law

The Partnership Agreement will be construed and enforced in accordance with the laws of the State of California.

Records and Reports

The Partnership Agreement provides that proper, complete records and books of account of the business of the Partnership shall be maintained, on the tax basis of accounting, and that each Limited Partner (or his duly authorized representative) shall have access to them, upon reasonable notice and for a proper purpose, during reasonable business hours. Each Limited Partner will receive the following reports:

- (1) within 120 days of the end of each fiscal year, an annual report containing financial statements of the Partnership accompanied by a report from a firm of independent certified public accountants, a general description of the Partnership's business during such fiscal year, and a summary of any material transactions between the Partnership and the General Partner or its affiliates;
- (2) within 60 days of the end of the fiscal quarter, an unaudited financial report; and
- (3) within 75 days of the end of each fiscal quarter, a statement containing all information concerning the Partnership necessary for the preparation of each Limited Partner's Federal income tax return.

Section 174 Tax Election

The General Partner will, on the first tax return filed on behalf of the Partnership, make a proper election under Section 174 of the Internal Revenue Code of 1954, as amended, for purposes of completing and filing the Partnership's Federal income tax returns, to treat research and experimentation expenditures as expenses which are not chargeable to capital accounts and to deduct such expenditures as paid, which election shall not thereafter be changed.

Partnership Purchase Option

If Genentech chooses to exercise the Partnership Purchase Option, see "Summary of Material Contracts—Joint Venture and Partnership Purchase Option Agreement", Genentech will notify the Class A Limited Partners of the exercise and the General Partner will transfer their Interests to Genentech in exchange for the consideration set forth in the Partnership Purchase Agreement (see "Summary of Material Contracts—Partnership Purchase Agreement"). Each Limited Partner irrevocably constitutes and appoints the General Partner, with full power of substitution, such Limited Partner's true and lawful attorney-in-fact, with full power and authority in such partner's name, place and stead to carry out the above transfer.

Genentech Offer in Lieu of Partnership Purchase Option

If Genentech chooses to offer to purchase the Interests of the Limited Partners on terms other than those set forth in the Partnership Purchase Agreement, the General Partner will provide each Limited Partner with written notice of the terms of the offer and an accurate description of all material consequences, including tax consequences, to the Limited Partners of such sale, and shall give the Limited

Partners an opportunity to vote for or against accepting such offer. If a majority in interest of the Limited Partners votes to accept such offer, the General Partner will transfer *all* of the Interests of the Limited Partners to Genentech in exchange for the consideration specified in the offer. Each Limited Partner irrevocably constitutes and appoints the General Partner, with full power of substitution, such partner's true and lawful attorney-in-fact, with full power and authority in such partner's name, place and stead to carry out the above transfer.

THE GENERAL PARTNER

The General Partner is Genentech Development Corporation, a California corporation wholly-owned by Genentech. Under the Development Agreement, the General Partner will be able to draw upon the full resources of Genentech to carry out the research and development program of the Partnership.

The Board of Directors of the General Partner is composed of the following five persons:

Fred A. Middleton, age 32, is Vice President—Finance and Corporate Development of Genentech. Mr. Middleton has been employed by Genentech since 1978.

James M. Gower, age 34, is Vice President—Pharmaceutical Marketing of Genentech. Mr. Gower has been employed by Genentech since 1981.

Brian C. Cunningham, age 39, is General Counsel of Genentech. Mr. Cunningham has been employed by Genentech since 1982.

Stephen Evans-Freke, age 31, is Vice President of Blyth Eastman Paine Webber Incorporated and Executive Vice President of BEPW Development Corporation, one of the Sales Agents.

Peter W. Wallace, age 49, is a Partner of Hambrecht & Quist, one of the Sales Agents.

DESCRIPTION OF GENENTECH, INC.

The Company

Genentech was organized in 1976 upon the premise that advances in recombinant DNA, gene synthesis and molecular biology made possible the development of a new technology which could produce a wide variety of valuable substances with human and animal health care, industrial, agricultural and other commercial applications. Since its formation, Genentech's main activity has been research and product development, with an emphasis on those products which capitalize on the advantages of gene splicing technology over current methods of production. Genentech's executive offices are located at 460 Point San Bruno Boulevard, South San Francisco, California 94080 (telephone (415) 952-1000).

Summaries of Genentech's Statements of Operations since 1977 and of its condensed Balance Sheet as of June 30, 1982 are presented below. These summary statements should be read in conjunction with the financial statements included in Genentech's Annual Report to Shareholders for the year ended December 31, 1981 and its Quarterly Report to Shareholders for the quarter ended June 30, 1982, copies of which are included with this Memorandum.

Recombinant DNA Technology

Recombinant DNA technology is being used by the genetic engineering industry to transform bacteria, yeast or other microbes into tiny factories that turn out abundant quantities of beneficial biological products. This sophisticated technology is revolutionary because it permits the large-scale manufacture of large, complex proteins. Conventional purification or chemical synthesis methods cannot practicably or economically accomplish the production of complex proteins, and so the full economic potential of the majority of proteins has never before been realized.

Proteins are all-important in life processes. Two important classes of cell regulators—hormones and enzymes—are proteins. Proteins give shape to cells, facilitate cell metabolism, and serve other vital functions in living organisms. Such essential and rare proteins are the principal products of the genetic engineering industry.

Cells carry the instructions for constructing proteins in their genetic material or genes. The genes of most living organisms are made up of a chemical called deoxyribonucleic acid, or DNA. DNA has four

different kinds of building blocks. Genes are composed of linear sequences of these building blocks. In turn, a string of genes makes up a chromosome.

For a protein to be made, the linear DNA instructions of a gene are first copied into an intermediate instruction composed of RNA or ribonucleic acid, a chemical similar to DNA. The RNA instruction then directs the proper assembling of the building blocks of proteins—amino acids.

The overwhelming majority of all living organisms, from bacteria to man, make proteins in this method: DNA to RNA to protein. Recombinant DNA technology makes use of this fact. In this technology, DNA from one organism is programmed into (recombined with) the DNA of another organism. Because for all practical purposes every living thing uses the universal genetic language of DNA, a bacteria can successfully decipher the genetic instructions of a man or a mouse.

This has tremendous advantages because microorganisms can be readily manipulated and are much simpler than animals, plants or humans. Over the last 30 years, and particularly the last ten years, scientists have learned how to identify and isolate gene coding for beneficial proteins. Over the past ten years they have been perfecting methods to take these genes from humans and a variety of other animals and plants and program them into microorganisms, such as bacteria or baker's yeast, or even into animal cells growing in laboratory culture. A landmark achievement came in 1973, when Herbert Boyer, professor of the University of California, San Francisco (a co-founder of Genentech and a member of its Board of Directors) and Stanley Cohen of Stanford University devised an ingenious and relatively simple method to transfer genes from one organism to another.

When scientists program a gene coding for a beneficial protein into the genetic material of microorganisms, they also attach instructions that direct the microorganisms to make great quantities of the protein, much more than is normally made in the natural state. Therefore, the microorganisms essentially become specialized factories producing a particular kind of protein. Rare proteins, such as hGH and gamma interferon, which are found only in vanishingly small amounts in humans, become available in ample amounts for the first time.

In sum, genetic engineering simply selects and amplifies the production of proteins by artful manipulation of nature's own methods. It transforms microorganisms into mini-factories single-mindedly producing beneficial protein products by capitalizing on the fact that DNA is the universal genetic language.

Genentech's Technology

At Genentech, general procedures used in developing its products are as follows. First, DNA with a coding sequence directing the manufacture of the desired substance is isolated and synthesized, and then it is specially tailored and assembled with other key pieces of DNA in a precise alignment which is inserted into microorganisms. These microorganisms then assimilate the newly encoded genetic information into their cellular makeup. Using their normal protein making machinery, the cells translate the information contained in the newly inserted DNA into the desired substance.

Once a single microorganism containing the correct "genetic code" has been engineered and identified, it will divide and pass on to its offspring the same information contained in the parent cell. Then, using "fermentation" techniques similar to those used in the production of antibiotics, large populations of genetically engineered microorganisms can be grown to produce the desired product. These "microbial factories" are capable of producing new products using their "spliced" DNA as a source of genetic instructions. Genentech operates its own fermentation facilities for the scaled-up growth of recombinant microorganisms and maintains a staff of fermentation specialists who operate these facilities.

Once production has taken place, Genentech "harvests" the genetically engineered microorganisms and isolates the desired product through a series of separation and purification techniques. Genentech operates facilities for undertaking the preparation of purified product obtained by these methods and employs protein chemists and development scientists to manage that preparation.

Other Product Developments

Genentech has engineered microorganisms to produce a number of medically and agriculturally important products, including, in addition to hGH (in 1979) and gamma interferon (in 1981), somatostatin

(in 1977), human insulin (in 1978), thymosin alpha-one (in 1979), human proinsulin (in 1980), several subtypes of human alpha interferon (in 1980), several hybrid alpha interferons (in 1980), human beta interferon (in 1980), bovine growth hormone (in 1980), porcine growth hormone (in 1981), vaccine for foot-and-mouth disease (in 1981), human calcitonin (in 1981), human albumin (in 1981), bovine interferon (in 1982) and tissue plasminogen activator (in 1982).

At present, hGH is one of four products made by microbes developed at Genentech that are in the clinical testing stage. The other three products include human insulin and two types of human alpha interferon.

In 1978, Genentech entered into a long-term agreement with Eli Lilly and Company ("Lilly") under which Lilly will manufacture and market human insulin developed by Genentech. In mid-1980, Lilly began construction of two manufacturing facilities to produce human insulin using recombinant DNA technology. Insulin produced in these facilities has been approved for sale in the United Kingdom and West Germany, and in the United States Lilly has completed clinical trials and submitted an NDA to the FDA. When marketed, this product will be the world's first human pharmaceutical product from recombinant DNA technology.

In 1980, Genentech entered into a joint development contract with Hoffman-La Roche, Inc. ("Roche") to produce alpha and beta interferons for the therapeutic market. Under this agreement, in return for payment of royalties on product sales, Roche received worldwide (including the United States) exclusive marketing rights. Genentech has the right to supply Roche with a substantial percentage of Roche's marketing requirements. Human clinical trials of two sub-types of alpha interferon produced under the Genentech-Roche contract began in the United States in January 1981 under Roche sponsorship. Genentech has supplied a portion of Roche's needs for these trials.

In addition to the foregoing, other products developed by Genentech that are currently undergoing trials include bovine growth hormone and porcine growth hormone (developed under an agreement with Monsanto Company) and vaccine for foot-and-mouth disease (developed in cooperation with the United States Department of Agriculture).

Genentech's development program also includes applications in industrial markets. In April 1982, Genentech and Corning Glass Works announced the formation of a jointly-owned company, Genencor, Inc. Genencor will produce industrial enzymes primarily for the food processing and chemical industries. It will take advantage of Corning's enzyme immobilization techniques as well as Genentech's recombinant DNA technology.

Manufacturing

Genentech operates its own manufacturing facilities to scale-up the production of its products and to manufacture commercial quantities. In 1981, Genentech leased a site and began construction of a 72,000 square foot development and manufacturing facility that is currently being completed. Genentech believes the productive capacity of its present manufacturing facilities, including the new facility, is adequate for its manufacturing requirements for the next several years.

Research and Development

Substantially all of Genentech's operating expenses to date have been related to the development of products either on its own behalf or under contracts with customers. The extent of Genentech's research and development activity is expected to increase in future years.

As of June 30, 1982, Genentech employed 385 full-time employees and 38 consultants, of whom 75 hold Ph.D. degrees and 69 hold other advanced degrees in scientific or technical fields. Of the full-time employees, 162 were engaged in research, 26 in quality control and clinical research, 97 in manufacturing and 100 in marketing, finance and administration.

Additional Information Regarding Genentech

For additional information regarding Genentech's business, see Genentech's Annual Report to Shareholders for the year ended December 31, 1981 and Genentech's Quarterly Report to Shareholders for the quarter ended June 30, 1982, copies of which are included with this Memorandum.

GENENTECH, INC.
Statement of Operations
(In Thousands)

	Year Ended December 31,					Six Months Ended	
	1977	1978	1979	1980	1981	6/30/81	6/30/82
						(Unaudited)	
Revenues:							
Operating	\$ 0	\$ 796	\$2,582	\$6,499	\$15,208	\$5,754	\$11,958
Interest	26	57	524	2,463	6,073	3,202	2,097
Other	0	3	300	0	0	0	0
Total revenues	26	856	3,406	8,962	21,281	8,956	14,055
Costs and expenses, principally re- search and development costs	452	1,229	3,278	8,692	20,703	8,725	13,902
Income (loss) before taxes and ex- traordinary item	(426)	(373)	128	270	578	231	153
Provision for income taxes	0	0	46	120	278	106	22
Income (loss) before extraordinary item	(426)	(373)	82	150	300	125	131
Extraordinary item	0	0	34	86	203	83	0
Net income (loss)	<u>\$ (426)</u>	<u>\$ (373)</u>	<u>\$ 116</u>	<u>\$ 236</u>	<u>\$ 503</u>	<u>\$ 208</u>	<u>\$ 131</u>

GENENTECH, INC.
Condensed Balance Sheet
(In Thousands)

	June 30, 1982
	(Unaudited)
Assets	
Current assets:	
Cash	\$ 252
Short-term cash investments	25,018
Receivables and prepaid expenses	8,307
Total current assets	33,577
Property, plant and equipment, net	35,607
Patents pending and other assets	280
Total assets	<u>\$69,464</u>
Liabilities and Shareholders' Equity	
Current liabilities:	
Accounts payable and accrued liabilities	\$ 3,490
Current portion of long-term debt	1,000
Deferred revenue	163
Total current liabilities	4,653
Long-term debt	5,976
Total liabilities	10,629
Shareholders' equity	58,835
Total liabilities and shareholders' equity	<u>\$69,464</u>

SUMMARY OF INCOME TAX CONSEQUENCES

This summary outlines the more significant Federal income tax principles applicable to the Partnership, to the Investors and the Joint Venture. The statements, conclusions and opinions contained herein are based on the current law as contained in the Code, Treasury Regulations, administrative rulings and court decisions as of the date of this Memorandum. No assurance can be given that future legislative, administrative or court decisions will not modify the legal bases for the statements, conclusions or opinions expressed. Any such development may be applied retroactively to transactions completed prior to the date thereof.

The Internal Revenue Service ("IRS") has indicated that it intends to increase the number of its audits of tax returns filed by "tax shelter" partnerships and to examine 25% of the partnership returns reporting losses over \$25,000. The IRS may examine the Partnership's returns and may disagree with the tax positions taken by the Partnership. If challenged by the IRS, the Partnership's tax position may not be sustained by the courts. If the IRS makes an adverse determination upon an audit of a Partnership return, it may make separate audits of the Investors' tax returns, which could result in adjustments to tax liabilities attributable to non-Partnership as well as Partnership items. Each prospective investor is strongly urged to consult his tax advisers regarding the possible tax consequences of an investment in the Partnership.

Opinion of Counsel

Messrs. Davis Polk & Wardwell, Special Tax Counsel to the Partnership, will issue an opinion to the Partnership in substantially the form set forth below, assuming that there is no substantial change in the legal bases for such opinion between the date of this Memorandum and the Closing Date. This opinion will represent the best judgment of Special Tax Counsel under existing statutes, judicial decisions and administrative regulations and interpretations. However, opinions of tax counsel have no binding effect on the IRS or the courts.

"You have requested our opinion as to (1) the classification for federal income tax purposes of Genentech Clinical Partners, Ltd., a Limited Partnership, a California limited partnership (the "Partnership"), (2) the deductibility for federal income tax purposes of payments made by the Partnership to Genentech, Inc. ("Genentech") for research or experimentation and (3) the character for federal income tax purposes of payments, if any, received by the Class A Limited Partners in the Partnership (the "Investors") from Genentech if Genentech pursuant to the Partnership Purchase Agreement referred to below should purchase from the Investors their interests in the Partnership (the "Interests").

"In rendering this opinion, we have reviewed the Limited Partnership Agreement dated as of October 1, 1982 among Genentech Development Corporation (the "General Partner"), the Investors and Medical Investors Corporation (the "Class B Limited Partner"); the Confidential Private Placement Memorandum of the Partnership dated October 11, 1982; the Development Agreement between Genentech and the Partnership; the Joint Venture and Partnership Purchase Option Agreement among Genentech, the Partnership, the Class B Limited Partner and the Investors, to which are attached as exhibits the Joint Venture Agreement between Genentech and the Partnership and the Partnership Purchase Agreement among Genentech, the General Partner, the Investors and the Class B Limited Partner; the Cross License Agreement between Genentech and the Partnership; and the balance sheets of the General Partner dated as of December 31, 1981 and June 30, 1982 (all of the foregoing agreements being referred to herein as the "Agreements"). In addition, in rendering this opinion we have relied upon factual representations from Genentech and the General Partner, which facts are set forth in a letter to us dated the date hereof, and this opinion is expressly based upon the accuracy of those facts. Furthermore, this opinion is based upon law in effect on the date hereof.

"Based upon the foregoing:

"(1) We believe that the Partnership constitutes a partnership and not an association for federal income tax purposes, and accordingly that each Investor will take into account in determining his own Federal income tax liability his distributive share of the Partnership's income, gain, loss, deduction and credit.

"(2) Although the matter is not free from doubt, primarily by reason of the uncertain scope of the Supreme Court's decision in *Snow v. Commissioner*, 350 U.S. 831 (1974), and the limited body of authority determining what constitutes a 'research or experimental expenditure' within the meaning of Section 174 of the Internal Revenue Code of 1954, as amended (the "Code"), we believe that substantially all of the Partnership's payments to Genentech pursuant to the Development Agreement should be deductible under Section 174 of the Code when paid by the Partnership, and that if the IRS were to challenge such deductibility in court, the Investors should ultimately prevail.

"(3) Although the proper characterization of any gain recognized by the Investors on the transfer of the Partnership Interests pursuant to the Partnership Purchase Agreement is not free from doubt, primarily because of the paucity of direct legal authorities, and subject to the exceptions set forth in subparagraphs (a) through (c) below, we believe that the arguments in favor of the position that such gain is capital gain outweigh the arguments to the contrary, and therefore that a court should hold that such gain is capital gain. Such capital gain would be long-term capital gain if the particular Investor has held (or is deemed to have held) his Interest for more than one year on the date of the transfer. This characterization involves various facts which will be determined and events which will occur in the future, however, both of which will be subject to interpretation by a court, and accordingly there can be no assurance as to the outcome. The exceptions referred to in the first sentence of this paragraph are the following:

"(a) A portion of the payments will be ordinary income to the extent of any, stated interest pursuant to the Partnership Purchase Agreement and to the extent of any interest imputed on such payments under Section 483 of the Code; the portion of each payment which constitutes interest will increase the longer the period of time between the sale of the Interests and receipt of the payment.

"(b) To the extent that payments are attributable to any inventory of pharmaceutical products that the Joint Venture holds on the date of purchase of the Interests, long-term capital gain treatment is unlikely to be available. Genentech has represented, however, that it expects any such inventory to be minimal in amount.

"(c) To the extent that a particular Investor is, because of his activities apart from the Partnership, a 'dealer' in property such as the Technology, capital gain treatment will be unavailable to that Investor.

The General Partner has attempted to structure the Partnership's activities so that an investment in the Partnership will offer the Investors both (a) the possibility of a pre-tax profit if the Partnership's business activities should be successful, and (b) the possibility of Federal income tax benefits in the form of (i) deductions under § 174 amounting to a substantial portion of the Investors' capital contributions to the Partnership and (ii) long-term capital gain treatment in respect of a portion of payments (if any) received from Genentech if Genentech should elect to exercise its Partnership Purchase Option. There is no assurance that any of these goals will be met. (See "Risk Factors".) As to the Federal income tax benefits described above, Special Tax Counsel has advised the General Partner that, although the matter is not free from doubt (for the reasons set forth in greater detail below), Special Tax Counsel believes that the federal income tax benefits described in this paragraph are, in the aggregate, more likely than not to be realized by the Investors.

Tax Treatment of Partnership Transactions

In order for the structure of the transactions to afford the opportunity for the tax benefits potentially available as a result of the Partnership's ownership of the Technology, it is a prerequisite that the form of the various transactions and agreements be recognized. The IRS might contend that the form of the Partnership's transactions should be disregarded on the basis that the Partnership is only providing financing or services, or both, to Genentech or the General Partner, that the Partnership is only purchasing from Genentech a profits interest in hGH and gamma interferon, or that the activities of the Partnership should be attributed to Genentech or the General Partner. A recent case illustrating this type of argument was

Estate of Helliwell v. Commissioner, 77 T.C. 964 (1981), in which a limited partnership which purported to incur expenses in the production of a film was held merely to have purchased a profits interest in the film from the corporation which the court held to be the true payor of those expenses. Thus, the partnership's payments were treated as non-deductible costs of purchasing an asset (i.e., the profits interest) rather than deductible expenses of producing a film. *Helliwell* can be distinguished from the Partnership's situation, because (1) in *Helliwell* the partnership had a binding legal obligation to deliver the film to another party upon completion, whereas the Partnership may continue to own the Technology indefinitely; (2) in *Helliwell* the partnership provided less than one-half of the total funds needed to produce the film, whereas the Partnership's expenditures of approximately \$50 million on the Project will represent the substantial percentage of the overall funds expected to be necessary to create hGH and gamma intereron and to obtain FDA certification for those drugs in the United States market; and (3) the economic structure of the transaction in *Helliwell* was found to more closely resemble a loan by the Partnership for a limited profits participation than a genuine entry by the Partnership into a business, whereas the Partnership should be found to own, and to exploit, the Technology for its own account. (Genentech has spent approximately \$8.1 million already on development of hGH and gamma intereron). Nonetheless, the IRS could argue that the Partnership Purchase Option is essentially equivalent to an option to purchase the Technology, and further that that option is the equivalent of a firm purchase contract on the theory that Genentech is almost certain to exercise it. The General Partner believes that it is uncertain whether the Partnership Purchase Option will be exercised, and Special Tax Counsel has therefore advised the Partnership that, although the matter is not free from doubt, an IRS argument analagous to the holding in *Helliwell* should ultimately not succeed. If, however, a court were to agree with such an argument by the IRS, Genentech or the General Partner, rather than the Partnership, would be deemed to have incurred the research or experimental expenditures and would be deemed to be the tax owner of the Technology. Disallowance of deductions by the Partnership for research or experimental expenditures would result, and the Investors might also be denied the benefits of the capital gain provisions and of Section 1231 (discussed below).

The IRS might also assert that the Partnership's activities, coupled with activities of Genentech or the General Partner (or both), should be recharacterized as an informal partnership with Genentech or the General Partner (or both), in which case the Partnership might be disallowed deductions for a portion of its expenditures for research and experimentation and might not be treated as the tax owner of the Technology. Special Tax Counsel believes, on balance, that such an assertion by the IRS should not prevail in court.

Partnership Expenditures

(a) *Research and Experimental Expenditures*

The Partnership will elect under Section 174 of the Code to deduct its research and experimental expenditures and thus will report its payments to Genentech pursuant to the Development Agreement as deductions in the year paid. No ruling has been or will be sought from the IRS as to whether such payments will be research or experimental expenditures that are currently deductible. It is the opinion of Special Tax Counsel that, although the matter is not free from doubt, the Partnership should be entitled to deduct substantially all of the research or experimental expenditures anticipated to be incurred and referred to in the opinion of Special Tax Counsel. A substantial reduction in tax benefits from an investment in the Partnership would result if, notwithstanding such opinion of counsel, it were ultimately determined that the Partnership's payments for research and experimentation were not deductible.

Treas. Reg. § 1.174-(a)(2) provides that a taxpayer may deduct as "research or experimental expenditures" payments made to a third party to perform research on behalf of the taxpayer if certain requirements are satisfied, including the requirement that the third person's expenditures qualify as "research or experimental expenditures" within the meaning of Section 174 and the requirement in certain circumstances that the expenditures be made at the taxpayer's risk. The General Partner believes, based upon the advice of Special Tax Counsel, that the expenditures made under the Development Agreement will be on behalf of the Partnership and at the Partnership's risk.

Treas. Reg. § 1.174-2(a)(1) defines "research or experimental expenditures" as those expenditures incurred in connection with the taxpayer's trade or business that represent research and development costs in the "experimental or laboratory sense," including generally all costs incident to the development of a new experimental or pilot model, a plant process, a product, a formula, an invention, or similar property, and the improvement of already existing property of the type mentioned. The Technology is expected to consist largely of rights to patents or patent applications previously developed by Genentech, the value of the rights having been augmented primarily by the clinical testing for FDA approvals (if any) funded by the Partnership. The Treasury Regulations referred to above do not specifically indicate whether the term "research or experimental expenditures" includes expenditures solely for clinical testing and regulatory approvals of a pharmaceutical compound (such as hGH or gamma interferon) which has already been developed. It is conceivable, therefore, that the IRS could challenge the Partnership's deductions under Section 174 for its clinical testing expenditures (which constitute the majority of the Partnership's anticipated expenditures) on the theory that Section 174 does not apply to expenditures for testing and regulatory approvals after a product already exists. Such a position would be contrary, however, to the IRS' conclusion in a National Office Technical Advice Memorandum, Doc. No. 8211004 (November 27, 1981). Furthermore, such a position may be inconsistent with Treas. Reg. § 1.174-2(a)(1), which excludes from the definition of "research or experimental expenditures" any expenses for "ordinary testing or inspection of materials or products for quality control," thus suggesting that expenses for clinical testing required in order to market a pharmaceutical product would qualify. Special Tax Counsel has advised that, on balance, he does not believe the IRS should be successful if it attempted to exclude the Partnership's clinical testing expenses from the scope of Section 174.

The Partnership Agreement requires the General Partner to use its best efforts to ensure that substantially all of the Partnership's expenditures will constitute research or experimental expenditures deductible under Section 174. Subject to uncertainty arising from the paucity of authority on the issue, and subject to the Partnership's commitment to expend substantial sums for clinical testing of the type described in the immediately preceding paragraph, the General Partner (based upon the advice of Special Tax Counsel) anticipates that substantially all of the payments made to Genentech by the Partnership under the Development Agreement will constitute such expenditures.

Regulations under Section 174 provide that the costs of acquiring from another person a "patent, model, production or process" are not "research or experimental expenditures" and therefore are not currently deductible. Under the Development Agreement, the Partnership's first payment to Genentech will include a retainer fee in the amount of approximately \$3,600,000. Under the Cross License Agreement, the Partnership will obtain certain rights as to patents previously developed by Genentech, in exchange for rights to use the Technology for applications other than sales of hGH and gamma interferon products in the United States. Apart from the rights conveyed under the Cross License Agreement, Genentech has already commenced some of the preliminary work of clinical tests necessary to the development of hGH. It is possible that the IRS may attempt to allocate a part of the retainer fee or of the other payments under the Development Agreement to the Partnership's acquisition of rights under the Cross License Agreement or to any "patent, model, production or process" which may have been created prior to the Closing Date. Genentech has represented that (i) the exchange of rights pursuant to the Cross License Agreement is a commercially reasonable exchange standing on its own, such as might be entered by two parties dealing at arm's length, and (ii) on the Closing Date such preliminary work of clinical testing will not have progressed to the point of creating any "patent, model, production or process" or any other distinct "property" independent of the underlying patents and patent applications, the value of which represents more than an insubstantial portion of the retainer fee. Accordingly, Special Tax Counsel has advised the General Partner that, although the matter is not free from doubt for the reasons discussed in this paragraph, substantially all of the Partnership's payments to Genentech will constitute "research or experimental expenditures" under Section 174.

Only research or experimental expenditures paid or incurred "in connection with a trade or business" of the taxpayer are currently deductible under Section 174 of the Code. The Supreme Court in *Snow v. Commissioner*, 416 U.S. 500 (1974), held that the taxpayer, a limited partner in a limited partnership that had incurred research or experimental expenditures, could deduct his distributive share of such expenditures

even though the partnership had not yet sold or offered its technology or any products utilizing such technology for sale, and therefore was not "engaged in a trade or business" within the meaning of Section 162 of the Code. The partnership in *Snow* subsequently incorporated, and the successor corporation manufactured and sold products utilizing technology developed by the partnership's research and experimental expenditures. Similarly, the Partnership will pay its research or experimental expenditures with a view toward conducting a trade or business as a co-venturer with Genentech to manufacture and market hGH and gamma interferon products. The conclusion that the Partnership will be in a trade or business at that time is dependent upon the Joint Venture's constituting a partnership for Federal income tax purposes. Special Tax Counsel believes that the Joint Venture will constitute a partnership under current law because (1) it will not possess more than two corporate characteristics within the meaning of the Treasury Regulations' definition of "partnership," (2) Genentech and the Partnership will share net income and net losses, and (3) the Partnership and Genentech will have exposure to real economic loss by reason of their capital contributions to the Joint Venture, their ownership of other assets exposed to Joint Venture losses and the requirement in the Joint Venture Agreement that Genentech and the Partnership on the liquidation of the Joint Venture contribute to it the amount of any negative balance in their capital accounts. It should be noted, however, that the Partnership has no assurance that Genentech will exercise its option to enter into the Joint Venture or that, if Genentech does not exercise that option, the Partnership will otherwise be in a position to manufacture or market hGH and gamma interferon products or any other product.

(b) Alternative Minimum Tax

The Tax Equity and Fiscal Responsibility Act of 1982 (the "1982 Act") substantially revises the alternative minimum tax for taxable years beginning after December 31, 1982. One of the new items of tax preference enumerated in Section 57 of the Code as amended by the 1982 Act is the excess of research and experimental expenditures deductible under Section 174 of the Code over the amount which would be deductible if an election were made to amortize those expenditures on a straight-line basis over a ten-year period pursuant to new Section 58(i) of the Code. (In the case of expenditures incurred by a partnership, a Section 58(i) election is made separately by each partner.) Assuming that no such election is made, a substantial portion of the Section 174 deductions which a Limited Partner hopes to realize could be subject to the alternative minimum tax. In addition to the research and development costs described above, the preference items under the 1982 Act include (1) certain preferences which were subject to the add-on minimum tax prior to the 1982 Act, (2) the deduction for long-term capital gains, (3) interest and dividend income excluded under the \$100 dividend exclusion, the All-Savers exclusion, and the 15-percent net interest exclusion (which takes effect after 1984), (4) the excess of expensing over 120-month amortization for mining exploration and development costs and magazine circulation expenditures and (5) the excess of the fair market value of stock received upon the exercise of an incentive stock option over the exercise price. Under the 1982 Act the alternative minimum tax for individuals will be the excess (if any) of (i) 20% times any excess of "alternative minimum taxable income" over the exemption amount (\$40,000 in the case of a joint return, \$30,000 in the case of unmarried individuals), over (ii) the "regular tax" for the taxable year. (The 1982 Act eliminates the add-on minimum tax for individuals.) Since the amount of an Investor's "alternative minimum taxable income" is dependent not only upon an investment in the Partnership but also upon numerous other individual circumstances affecting that Investor, each potential investor is urged to consult his own tax advisor and to weigh his own circumstances carefully with regard to the impact upon him of the many potentially significant changes of the alternative minimum tax under the 1982 Act.

(c) Timing of Deductions

As indicated above, the Partnership will elect under Section 174 of the Code to deduct its research or experimental expenditures in the year paid. Since each payment by the Partnership to Genentech under the Development Agreement, including the original retainer, will be based upon a reasonable estimate at that time as to the current (in the case of the original retainer) or next fiscal period's required expenditures, Special Tax Counsel believes that deduction of research or experimental expenditures by the Partnership when paid will clearly reflect the income of the Partnership for Federal income tax purposes. However, although Special Tax Counsel believes that such a result would be inconsistent with the policy of Section

174, the IRS might take the position that current deductions for payments by the Partnership to Genentech for research or experimentation do not clearly reflect income and therefore require deferral of deductions of such expenditures until the year in which the proceeds of those payments are spent by Genentech or until the income associated with such expenditures is received. Moreover, even if income is clearly reflected at the Partnership level, it is possible that the IRS or a court would conclude that deductions at the partner level materially distort income and require a deferral of such deductions. In either case, such a deferral could result in a substantial reduction in the value of anticipated tax benefits to the Investors.

(d) Profit Objective and Section 183 of the Code

Section 183 of the Code provides generally for the disallowance of deductions resulting from activities of individuals, partnerships and Subchapter S corporations not engaged in for profit. The General Partner believes that a profit-making motive is clearly present in the instant case, although there is no assurance that the Partnership will earn a profit.

(e) Capital Expenses

Certain expenses paid or incurred by the Partnership will be capitalized and will not be deductible in the year paid or incurred. These expenses include organizational expenses related to the formation of the Partnership, which may be amortized over a period of not less than 60 months, beginning with the month the Partnership commences business, if a proper election is made under the Code. Any expenses incurred by the Partnership with respect to the offering and sale of Partnership Interests are not deductible. Any other expenses incurred by the Partnership prior to the time the Partnership is engaged in a trade or business within the meaning of Section 162 of the Code (by, for example, manufacturing and marketing hGH and gamma interferon products), other than expenditures for research or experimentation, interest payments or other expenditures the deduction of which is expressly allowed by the Code, will not be currently deductible but may be amortizable over a period of not less than 60 months beginning with the month the Partnership begins business if a proper election is made under the Code.

Research and Experimentation Tax Credit

The Economic Recovery Tax Act of 1981 (the "1981 Act") established a new tax credit in Section 44F of the Code for incremental qualifying research and experimentation expenditures above the average of such expenditures during a base period. (This credit is independent of and in addition to the tax benefits of current deductibility under Section 174 of the Code.) Since the term "qualified research" for purposes of the credit is defined by reference to Section 174 of the Code, the payments from the Partnership to Genentech which are deductible under Section 174 (as discussed above) will generally fall within the scope of the credit. Unlike Section 174, however, which is available for expenditures incurred "in connection with a trade or business, Section 44F makes eligible for the new credit only expenditures incurred "in carrying on" a trade or business. The legislative history of the 1981 Act indicates that Congress specifically intended to require the close connection between qualifying expenditures and a trade or business which is necessary under Section 162, in contrast to the more liberal standard of Section 174. Therefore, despite the fact that there are significant uncertainties in the application of Section 44F to the Partnership, it is unlikely that the new credit will be available to entities such as the Partnership which undertake research prior to the time of exploiting the resulting technology by engaging in marketing and sales. Furthermore, the credit is allowable only against the portion of a partner's tax attributable to the partnership's trade or business. Accordingly, the written opinion of Special Tax Counsel (described above) will not cover the new credit, and potential investors are advised not to rely upon any benefit from the new credit in determining the suitability of an investment in the Partnership. It is possible, however, that the credit may be available in future years if the Partnership is continuing its research and experimentation on some aspects of the Technology while the Joint Venture is actively marketing and selling one or more products.

Income Realized from the Joint Venture

If Genentech exercises its option to enter into the Joint Venture with the Partnership, the Partnership's taxable income or loss from the Joint Venture should be computed by including its distributive share of the

Joint Venture's items of income, gain, loss, deduction and credit. The income or loss realized by the Joint Venture from the sale of hGH and gamma interferon products will constitute ordinary income or loss.

Income Realized from the Sale of the Interests

(a) Section 741 Capital Asset Treatment

If Genentech purchases the Interests pursuant to the Partnership Purchase Agreement, the gain recognized by each Investor may qualify as long-term capital gain (except as discussed below) pursuant to Section 741 of the Code. Although the proper characterization of any gain recognized by the Investors on such a transfer of the Interests is not free from doubt, primarily because of the paucity of direct legal authorities, it is the opinion of Special Tax Counsel that under existing law a court should hold that gain (other than that treated as interest income as described below or subject to the other specific exceptions discussed below) recognized by the Investors on the transfer of their Interests pursuant to the Partnership Purchase Agreement is gain from the sale of capital assets, but that the issue involves various questions which are subject to interpretation by a court and there can be no assurance as to the outcome. The exceptions referred to above are the following:

(1) A portion of the payments will be ordinary income to the extent of any stated interest pursuant to the Partnership Purchase Agreement and to the extent of any interest imputed on such payments under Section 483 of the Code; the portion of each payment which constitutes interest will increase the longer the period of time between the sale of the Interests and receipt of the payment.

(2) To the extent that payments are attributable to any inventory of pharmaceutical products that the Joint Venture holds on the date of purchase of the Interests, long-term capital gain treatment is unlikely to be available. Genentech has represented, however, that it expects any such inventory to be minimal in amount.

(3) To the extent that a particular Investor is, because of his activities apart from the Partnership, a "dealer" in property such as the Technology, long-term capital gain treatment will be unavailable to that Investor.

In order for an Investor's sale of his Interest to qualify for long-term capital gain treatment, the following requirements must be met:

- (i) The Interest must constitute a "capital asset" in the hands of the Investor;
- (ii) The Investor must have held the Interest for more than one year on the Purchase Date;
- (iii) The disposition of the Interest must qualify as a "sale";
- (iv) The gain must not be recharacterized as ordinary income pursuant to Section 751 of the Code (dealing with substantially appreciated inventory items and unrealized receivables); and
- (v) The sale by the Investors of their Interests must not be recharacterized as a sale of the Technology by the Partnership (unless such a sale were determined independently to qualify for long-term capital gain treatment).

Section 741 of the Code provides that gain or loss recognized by a partner upon sale or exchange of his interest in a partnership will be considered gain or loss from the sale or exchange of a capital asset, thus satisfying requirement (i) above. Since the Interests are not freely transferable, it is assumed for purposes of this discussion that each Investor would have held his Interest more than one year on the Purchase Date, thus satisfying requirement (ii). Finally, since each Investor would be disposing of his entire Interest in exchange for Genentech's obligation to make cash payments, the General Partner (based upon advice of Special Tax Counsel) believe that a "sale" would have occurred, thus satisfying requirement (iii). Therefore, long-term capital gain treatment could only be precluded by Section 751 of the Code or by a recharacterization of the transaction as a sale of the Technology by the Partnership. Even in the event of such a recharacterization, long-term capital gain treatment would only be precluded if, and to the extent, it were concluded that the sale of Technology did not constitute a transaction qualifying for long-term capital gain treatment.

(b) *Characterization under Section 751*

Section 751 provides in effect that capital gain treatment is not available to the extent that a transferor partner receives money (or property) in exchange for a partnership interest which is attributable to "unrealized receivables" as defined therein, or "inventory items . . . which have appreciated substantially in value as defined therein (referred to in this discussion as "Unrealized Receivables" and "Appreciated Inventory" respectively). Specifically, a partner will recognize ordinary gain or loss equal to the difference between (a) the amount realized that is attributable to his share of the partnership's Unrealized Receivables and Appreciated Inventory and (b) the basis that the partner's share of such property would have had in his hands if distributed in a current distribution immediately before the sale or exchange of his partnership interest. The difference between the balance of the partner's amount realized and the balance of his basis in his partnership interest will be capital gain or loss. Thus, part or all of an Investor's gain on sale of his Interest to Genentech would constitute ordinary income if the Partnership held (or was deemed to hold) any Unrealized Receivables or Appreciated Inventory on the Purchase Date.

The Joint Venture could conceivably hold some Unrealized Receivables on the Purchase Date in the form of receivables from outside purchasers of hGH and gamma interferon products which have been delivered. It is likely that the Partnership's share of those Unrealized Receivables would be treated as Unrealized Receivables in its hands and thus would require characterization of Investors' gain to that extent as ordinary income. Because the Joint Venture will employ an accrual method of accounting for tax purposes, however, the Joint Venture is unlikely to possess any substantial rights to receive amounts in payment for hGH and gamma interferon products delivered or to be delivered prior to recognition of those amounts for tax purposes. Accordingly, the General Partner believes (based upon advice of Special Tax Counsel) that it is unlikely that the Partnership will be treated as holding, on the Purchase Date, more than a minimal amount of Unrealized Receivables.

Appreciated Inventory is defined in Section 751(d) of the Code to include (if "substantially appreciated") the following types of property which, in the hands of the partnership or the partner in question, would produce ordinary income if sold:

- (A) "stock in trade" or "inventory" of the partnership, or property held by the partnership "primarily for sale to customers in the ordinary course of [the partnership's] trade or business;"
- (B) any other property which, if sold by the partnership, would not qualify as a capital asset as defined in Section 1221 of the Code (a "Capital Asset") or as a depreciable asset used in the partnership's trade or business as defined in Section 1231 of the Code (a "Section 1231 Asset");
- (C) certain stock in foreign investment companies; or
- (D) any property of the partnership which would fall into categories (A), (B) or (C) in the hands of the transferor partner.

The Partnership's principal asset at the time of the Purchase Date would be its rights in the Technology. Since the Technology is not stock in a foreign investment company, and since each Investor's particular circumstances will impact whether the Technology might constitute Ordinary Income Property, as defined below, in such Investor's hands, whether an Investor would recognize ordinary income under Section 751 upon a sale of his Interest pursuant to the Partnership Purchase Agreement depends for purposes of this discussion primarily upon whether the Technology in the hands of the Partnership would be property described in categories (A) or (B) above (referred to herein as "Ordinary Income Property").

The Technology would not constitute "inventory" or "stock in trade" of the Partnership within the meaning of Section 751. The Technology will nonetheless be Ordinary Income Property in the hands of the Partnership if (1) it is property held by the Partnership primarily for sale to customers in the ordinary course of the Partnership's trade or business, or (2) property such as that involved in *Corn Products Refining Company v. Commissioner*, 350 U.S. 52 (1955), that is, property not held as an investment in order to profit from its appreciation in value but instead held and sold as part of the everyday operation of a business. The Supreme Court in *Malat v. Riddell*, 383 U.S. 596 (1966), indicated that property held for the dual purposes

of sale or development may constitute a Capital Asset, depending on the facts, and stated that the purpose of the statutory provision is to differentiate between the "profits and losses arising from the everyday operation of the business" and the "realization of appreciation in value accrued over a substantial period of time." The courts in some cases have found that property was Ordinary Income Property even when the taxpayer acquired and disposed of only a single property, as, for example, in a situation in which there was a committed buyer for such property prior to its acquisition by the taxpayer. The IRS could conceivably assert on either of the foregoing grounds that the Technology is Ordinary Income Property by arguing that the primary purpose of the Partnership was to sell the Technology and that the sale occurred in the ordinary course of the Partnership's trade or business. It is possible that a court would hold in favor of the IRS. Such an argument would have to ignore the facts that the form of the contemplated transactions contemplates that the Partnership will dispose of the Technology by contribution to the Joint Venture, that the Joint Venture will not hold the Technology for sale, and that only upon the uncertain decision of Genentech may the Interests (as distinguished from the Technology) be acquired by Genentech. Furthermore, the Tax Court in *Carmelo Ofria*, 77 T.C. No. 38 (August 31, 1981), recently held that certain trade secrets and know-how, although created exclusively for sale to a particular purchaser, were nonetheless Capital Assets, and that the proceeds of that sale constituted long-term capital gain. This case strengthens the Partnership's position that the Technology would constitute property of a type qualifying for long-term capital gain treatment. The IRS might also argue that since the Partnership will cease to exist for tax purposes upon Genentech's purchase of all the Interests, that transaction is the equivalent of a sale by the Partnership of the Technology. In that case, the Partnership might be said to have held the Technology "primarily for sale to customers in the ordinary course of [its] trade or business," since the exercise of the Partnership Purchase Option was at least a possibility from the inception of the Partnership, and the Partnership is a party to the Joint Venture and Partnership Purchase Option Agreement (pursuant to which the Partnership Purchase Option arises). On balance, however, Special Tax Counsel does not believe that the IRS should succeed in such assertion, principally because the Partnership would not in fact hold the Technology for sale despite the fact that Genentech's purchase of the Interests pursuant to the Partnership Purchase Agreement may be characterized for certain tax purposes as a direct purchase of the Technology.

In addition, copyrights created by the personal efforts of the taxpayer and letters, memoranda and similar property (including research papers and drawings), whether prepared by the taxpayer's personal efforts or prepared or produced for the taxpayer, constitute Ordinary Income Property. Although the question is not free from doubt, the General Partner believes that items of the Technology constituting copyrights, letters, memoranda, and similar property will not constitute Ordinary Income Property, because they will not be created by the "personal efforts" of the Partnership or any Investor and are not the type of memoranda, research papers and drawings to which Sections 1231(b)(1)(C) and 1221(3) apply.

If the Technology is not Ordinary Income Property, Special Tax Counsel believes that substantially all of the items which constitute part of the Technology that are not Ordinary Income Property should constitute depreciable property used in the Partnership's trade or business, that is, Section 1231 Assets. Such property should be used in a trade or business of the Partnership if Genentech exercises its option to enter into the Joint Venture with the Partnership or if the Partnership otherwise uses the Technology to manufacture hGH or gamma interferon products. Patents are property of a character which is subject to the allowance for depreciation, and other intangible property is of that character if it has a limited useful life the length of which can be estimated with reasonable accuracy. Subject to the rules discussed below, gain recognized on a hypothetical sale or exchange of Section 1231 Assets would be eligible for treatment by the Investors as long-term capital gain.

Items constituting part of the Technology that are not Ordinary Income Property and that are not of a character which is subject to the allowance for depreciation should constitute Capital Assets. Gain recognized on a hypothetical sale or exchange of such items would be taxable to the Investors as long-term capital gain if such items have been held by the Partnership for more than one year at the time of the sale or exchange.

The IRS could conceivably argue that Appreciated Inventory includes not only the categories of assets specifically set forth in Section 751 of the Code (described in (A), (B), (C) and (D) above) but also any other asset of the Partnership which would result in ordinary income to the Partnership upon its disposition. Special Tax Counsel has advised the General Partner that, although the matter is not free from doubt, the IRS should not succeed with such a theory. If, however, the IRS were to raise such an argument, there are several theories pursuant to which a hypothetical sale by the Partnership of the Technology would result in ordinary income (apart from treatment of the Technology as Ordinary Income Property). Specifically, such a sale would result in ordinary income if and to the extent that any of the following conditions exist:

- (i) The Technology does not constitute "property" for Federal income tax purposes;
- (ii) The Partnership has held the Technology for one year or less at the time of sale; or
- (iii) The tax benefit rule applies to recharacterize capital gain as ordinary income.

The following paragraphs discuss the implications of each of these requirements for characterizing gain on the sale of the Technology as long-term capital gain.

"Property". To avoid ordinary income treatment upon a hypothetical sale, the Technology would have to constitute "property" for Federal income tax purposes. The Technology is anticipated to consist of rights in certain trade secrets, proprietary information, know-how and possibly also copyrights, and exclusive rights in certain patents (or patent applications), with each such right being limited to that right necessary to engage in certain fields of use and geographical areas (and, in the case of rights necessary for the use, manufacture or sale of hGH, each such right being subject to the nonexclusive right of a third person in such trade secrets, proprietary information, know-how, copyrights and patents (or patent applications) to use, manufacture and sell hGH, which right begins ten years after the first commercial sale of hGH by Genentech or any affiliate or licensee of Genentech). For a trade secret to constitute "property" for Federal income tax purposes, it must be secret and may also have to be in the nature of a patentable invention, be afforded substantial legal protection against unauthorized disclosure and use, and may have to confer competitive advantage. The standards for determining whether know-how and other proprietary information constitute "property" for Federal income tax purposes are not well developed or clearly defined. Such information may have to meet standards comparable to those for a trade secret, although in several cases the courts have concluded that certain types of such information are property where they facilitate the use of, or are ancillary and subsidiary to, for example, trade secrets or patents. Patents (or patent applications) and copyrights constitute "property" for Federal income tax purposes. Although there is little or no relevant authority, exclusive rights to patents or patent applications within certain geographical areas and fields of use may also constitute "property," although there is no assurance that the IRS would not take a contrary position on this point. Although the question is not free from doubt, the General Partner believes, on advice from Special Tax Counsel, that substantially all of the Technology (with the possible exception of certain unpatented information disclosed on patent applications) will qualify as "property" for Federal income tax purposes and will take all necessary and appropriate actions to protect the secrecy of and proprietary rights to all of the Technology with a view toward ensuring that it continues to constitute "property."

Holding Period. As indicated above, in order for gain on a hypothetical sale of the Technology to qualify as long-term capital gain, the Technology must have been held by the Partnership for more than one year at the time of the sale. Court decisions indicate that a taxpayer's holding period for an invention developed by the taxpayer begins when the invention is "reduced to practice." Genentech's option to enter into the Joint Venture does not arise until at least one of the hGH or gamma interferon products is ready for commercial production and sale, indicating that the Technology for that product must have been "reduced to practice." Since Genentech's option to purchase the Interests becomes exercisable no earlier than two years after it enters into the Joint Venture, and, unless four years shall have passed, only after net profits of an amount equal to not less than 15% of the capital contributions of the Investors shall have been distributed to the Partnership, the one-year holding period requirement should be satisfied as to the Technology for that product. However, the IRS could possibly assert that the Technology was "reduced to practice" at a date later than the date determined under the Partnership Purchase Agreement. Furthermore, although the Partnership intends to develop the Technology for all products as promptly as possible, there can be no

assurance that the Technology as to other products will have been "reduced to practice" more than one year prior to the date of the Partnership Purchase Agreement. Accordingly, it is possible that a substantial part of the Technology would not qualify for long-term capital gain treatment upon a hypothetical sale. The IRS could conceivably argue on the theory described above, therefore, that a substantial part of the Technology should be treated as Appreciated Inventory, thus causing a corresponding portion of the Investors' gain on sale of their Interests to be characterized as ordinary income. Special Tax Counsel has advised the Partnership, however, that it believes the IRS is unlikely to succeed with such an argument, since under Section 741 and 751 a partner's holding period for his partnership interest should determine whether any gain or loss is long-term or short-term, regardless of the partnership's holding period for its assets.

Tax Benefit Rule. In Rev. Rul. 72-528, 1972-2 C.B. 481, the IRS ruled that an insurance recovery with respect to a pilot model whose costs were deducted under Section 174 was taxable under the tax benefit rule as ordinary income. The tax benefit rule characterizes as ordinary income the recovery of an amount deducted in a prior taxable year to the extent it decreased the taxpayer's taxable income. Special Tax Counsel believes that this revenue ruling is distinguishable from a hypothetical sale or exchange of the Technology by the Partnership because there would not be a recovery of the identical items that were deducted as research or experimental expenditures, and that the tax benefit rule should not apply to recharacterize as ordinary income gain otherwise taxable as capital gain on a sale of the Technology. Nevertheless, this ruling indicates that the IRS may assert that the tax benefit rule should apply to recharacterize the Partnership's gain from a hypothetical sale or exchange of the Technology as ordinary income to the extent of the Partnership's previous deductions for research or experimental expenditures.

(c) *Interest on Deferred Payments*

Apart from characterization of gain under Section 751 as ordinary income, a portion of the deferred payments received by the Investors on a sale of Interests to Genentech pursuant to the Partnership Purchase Agreement will be characterized as interest income and taxable as ordinary income. Under Section 483 of the Code and Regulations thereunder, if some or all of the payments due under certain contracts of sale are due more than one year after the date of sale, and if the contract does not state interest at a rate of at least 9% per annum simple interest on payments deferred more than six months from the date of sale, that portion of such payments which, when added to stated interest, is equal to interest at a rate of 10% per annum compounded semi-annually on the remaining portion of the payments, will be treated as interest. When the due date or the amount of a deferred payment cannot be determined at the time of a sale or exchange, the computation of imputed interest is determined separately for each payment, and the amount is calculated from the date of sale to the date payment is made.

The Partnership Purchase Agreement provides that Genentech and the Partnership will determine a rate of interest to be used in computing the amount of the portion of each payment to be treated as interest. It is anticipated that this rate of interest will correspond to the 9% simple interest rate that the Regulations currently provide must be stated to avoid imputed interest at the 10% rate compounded semiannually under those Regulations. If the IRS were to contend successfully that taxpayers may not "state" an interest rate in this manner for payments whose amounts and whose due dates are contingent, interest would be imputed under Section 483 at the then applicable higher imputed rate on payments received by the Investors more than six months after the Partnership Purchase Date.

If the Partnership were to sell the Technology to a third person, the foregoing discussion will apply if and to the extent the sale agreement provides for at least one deferred payment more than one year after the date of sale and provides for the requisite stated interest under the applicable Regulations for payments made more than six months after the date of sale. If the sale agreement does not provide for the minimum stated interest, Section 483 will treat as interest a portion of each payment made more than six months after the date of sale under the imputed interest rate applicable at the time of sale.

Prospective investors should note that both the Partnership Purchase Agreement and Section 483 (where the sale contract provides for no stated interest or insufficient stated interest) treat as interest a greater portion of a deferred payment whose due date or amount cannot be determined at the time of sale

the longer the period of time the payment is made after the date of sale. Thus, a substantial portion of payments the Investors receive from a sale of the Interests to Genentech pursuant to the Partnership Purchase Agreement may constitute interest taxable as ordinary income at rates as high as 50%.

Classification as a "Partnership"

Treatment of the Partnership as a "partnership" for Federal income tax purposes is essential to the Investors' ability to deduct their distributive shares of any Partnership tax deductions or losses and to include in their income their distributive shares of any income or gains of the Partnership. Treasury Regulations provide that an organization such as the Partnership will be treated as a partnership for Federal income tax purposes (rather than an association taxable as a corporation) unless the organization has more than two of the following corporate characteristics: (1) limited liability, (2) free transferability of interests, (3) continuity of life and (4) centralization of management. Based upon the General Partner's satisfying the minimum net worth requirements of Rev. Proc. 72-13, 1972-1 C.B. 735, the Partnership should not be deemed to possess limited liability. Because transfer of an Investor's Interest requires the consent of the General Partner (in its sole discretion) under Section 8.3.1 of the Partnership Agreement, the Partnership lacks free transferability of Interests. Accordingly, it is the opinion of Special Tax Counsel that the Partnership will constitute a partnership and not an association for Federal income tax purposes.

If, notwithstanding the opinion of Special Tax Counsel, the Partnership were treated as an association taxable as a corporation instead of as a partnership, no part of the income and deductions of the Partnership would flow through to the Investors, and the Partnership would pay Federal income tax at corporate tax rates on its taxable income. Tax payable by the Partnership would reduce the amount available to be distributed to the Investors. Amounts distributed to the Investors would be treated as ordinary dividend income to the extent of the Partnership's current and accumulated earnings and profits and would not be deductible by the Partnership in computing its tax liability.

Federal Income Taxation of Partnerships and Partners Generally

Partners, not Partnership, Subject to Tax. If treated as a partnership for Federal income tax purposes, the Partnership as an entity will not pay Federal income tax, and each partner will be required to report on his Federal income tax return his distributive share of the income, gains, losses, deductions and credits of the Partnership for the taxable year of the Partnership ending within or with the taxable year of the partner. A partner is taxable on partnership income or gain whether or not any distribution of money or property is made to the partner during his taxable year, and therefore a partner's income or tax liability related to transactions by the Partnership could exceed any amounts distributed to him by the Partnership in a particular year.

Allocation of Partnership Profits and Losses for Tax Purposes. The Partnership Agreement allocates the income, gains, losses, deductions and credits of the Partnership, 1% to the General Partner and 99% to the Limited Partners, until an aggregate of 100% of the Limited Partners' original investment has been allocated and distributed to the Limited Partners, after which 1% of the Partnership's income, gains, losses, deductions and credits will be allocated to the General Partner, 5% of the Partnership's net gains will be allocated to the Class B Limited Partner, and the remainder of the Partnership's income, gains, losses, deductions and credits will be allocated to the Limited Partners. Within each of these groups each item is allocated among the partners based on the amounts in their capital accounts and on the portion of the Partnership's taxable year that each partner is a member of the Partnership. See "Summary of the Limited Partnership Agreement." A partner's distributive share of a partnership's income, gain, deduction, loss or credit for Federal income tax purposes is generally determined in accordance with the provisions of the partnership agreement, and Special Tax Counsel believes that the partners' distributive shares of the Partnership's items of income, gain, deduction, loss or credit for Federal tax purposes will be determined in accordance with the allocations described above.

Limitations on Deductions of Partnership Losses; Basis in Partnership Interests. A partner is entitled to deduct on his Federal income tax return his distributive share of a partnership loss, but not in excess of his adjusted basis in his partnership interest at the end of the taxable year of the partnership in which such loss

occurs. If a partner's distributive share of a partnership loss for any partnership taxable year exceeds the partner's adjusted basis in his partnership interest at the end of that taxable year, such excess may not be deducted at that time but may be carried over and deducted in any later year if and to the extent the partner's adjusted basis in his partnership interest at the end of the later taxable year otherwise exceeds zero.

Generally, a partner's adjusted basis in his partnership interest is equal to the amount of cash (or the amount of the adjusted basis in any property) he contributed to the partnership, plus his share of the partnership's liabilities, decreased (but not below zero) by distributions to the partner from the partnership (including constructive cash distributions resulting from a decrease in partnership liabilities) and by the partner's distributive share for the taxable year and prior taxable years of losses of the partnership, and increased by his distributive share for the taxable year and prior taxable years of partnership taxable income. Thus, an Investor's adjusted basis for his Interest will be reduced in the amount of that portion of the Investor's contributions to the Partnership which are deductible under Section 174. Accordingly, it can be anticipated that, after the development period, each Investor's adjusted basis for his Interest will be very low.

Distributions from Partnership. Cash distributions from a partnership to a partner are generally not equivalent to partnership income as determined for Federal income tax purposes or as determined under generally accepted accounting principles. If the amount of a distribution to a partner by the partnership (which constructively includes, as indicated above, any decrease in the partner's share of liabilities of the partnership) does not exceed the partner's adjusted basis in his partnership interest immediately before the distribution, the distribution does not constitute income to the partner for Federal income tax purposes but reduces the partner's adjusted basis in his partnership interest. However, if the amount of a distribution to a partner in any taxable year of the partnership exceeds the partner's adjusted basis in his partnership interest immediately before the distribution, the excess is taxable to the partner as though it were gain recognized on the sale or exchange of the partner's interest.

Transfer of Partnership Interest. The sale or exchange of a partnership interest can result in the recognition of both ordinary gain or loss and capital gain or loss, as discussed in greater detail above. An appropriate amount determined pursuant to Section 751 of the Code (based upon the partnership's Unrealized Receivables and Appreciated Inventory, if any) will be characterized as ordinary income, and the balance of gain recognized by the partner will be characterized as capital gain. Such gain will be long-term capital gain if the partner has held his partnership interest for more than one year at the time of the sale or exchange. As indicated above, no assurance can be given that the IRS will not assert that the Partnership holds Appreciated Inventory or Unrealized Receivables. If the IRS successfully maintained such an argument, a significant portion or all of the gain recognized by an Investor on a sale or exchange of his Interest would constitute ordinary income rather than capital gain.

Election to Adjust Basis of Partnership Assets. Pursuant to Section 754 of the Code, a partnership may make an election to adjust the basis of the partnership's assets in the event of a distribution of partnership property to a partner, a sale by a partner of his interest in the partnership or the death of a partner. Depending upon particular facts at the time of any such event, such an election could increase or decrease the value of a partnership interest to the transferee, because the election would increase or decrease the basis of the partnership's assets for the purpose of computing the transferee's distributive share of partnership income, gains, deductions and losses. The Partnership Agreement authorizes the General Partner to make such an election. However, because the election, once made, cannot be revoked without obtaining the consent of the Commissioner of Internal Revenue and because of the accounting complexities that can result from having such an election in effect, there can be no assurance that the General Partner will make this election.

New Rules for IRS and Court Determination of Partnership Tax Items. The Tax Treatment of Partnership Items Act of 1982 (the "1982 Partnership Act") establishes significant changes in the treatment of partnership tax items in the event of administrative proceedings before the IRS and litigation in court, which changes will be applicable to the Partnership. Whereas under prior law the IRS audit procedure and court litigation of partnership items occurred exclusively at the partner level (thus permitting inconsistent

treatment of partnership items by two different partners in the same partnership), the 1982 Partnership Act provides generally that the tax treatment of partnership items will be determined at the partnership level. Investors will generally be required to file their tax returns in a manner consistent with the information returns filed by the Partnership, unless the Investor in question files a statement with his tax return describing any inconsistency. The General Partner will be the Partnership's "tax matters partner" and as such will have certain responsibilities with respect to any IRS audit and any court litigation relating to the Partnership, including in some circumstances the right to reach settlement agreements which will be binding on all partners. In general, the 1982 Partnership Act will reduce somewhat the individual control which an Investor will have over IRS audit and court litigation of Partnership issues as compared with the degree of individual control which partners have had in the past. Each potential investor should consult his own tax advisor as to the likely impact of these new procedural rules upon him.

Other Federal Income Tax Provisions Relevant to an Investment in the Partnership

Capital Gains and Losses. Under current law, a noncorporate partner may deduct from gross income 60% of any net capital gain for the taxable year (the excess of his net long-term capital gain for the taxable year over his net short-term capital loss for such year). The non-deducted 40% of net capital gain is subject to taxation at the noncorporate partner's otherwise applicable rates. Since the 1981 Act reduced the maximum marginal tax rate for noncorporate taxpayers beginning in 1982 from 70% to 50%, the resulting maximum rate of taxation on the net capital gain of a noncorporate partner will be 20%. In the case of a noncorporate partner, the deductible portion of net capital gain for a taxable year may be subject to the alternative minimum tax imposed by Section 55 of the Code at rates of 10-20% in 1982, and at the rate of 20% subsequently. A corporate taxpayer is subject to tax on net capital gain at the lesser of 28% and the applicable tax rate under Section 11 of the Code. In the case of a corporate partner, a portion of net capital gain for a taxable year is an item of tax preference that may also be subject to the minimum tax imposed by Section 56 of the Code.

Limitation on Interest Deductions. Limitations exist on the deductibility of interest on funds borrowed to acquire or carry investment assets ("Investment Interest"). Interest on a loan incurred by an Investor to purchase or carry an Interest will constitute Investment Interest and may be subject to these limitations. In general, Investment Interest is deductible by an individual taxpayer only to the extent that it does not exceed the sum of (i) \$10,000 for a single individual or married persons filing a joint return (\$5,000 for a married person filing a separate return), plus (ii) "net investment income," that is, the excess of (a) the gross income from interest, dividends, rents, royalties, net short-term capital gain attributable to the disposition of property held for investment, and recapture of depreciation and intangible drilling costs over (b) expenses, excluding the interest expense, incurred in earning such income. The applicability of the investment interest limitation to an Investor will depend upon his overall investment situation. The investment interest limitation is not applicable to corporations, other than "subchapter S" corporations.

Foreign Taxpayers. Investors who are foreign taxpayers as to the United States, such as nonresident aliens, foreign corporations, and foreign trusts and estates ("Foreign Taxpayers"), will be considered as being engaged in a trade or business in the United States after the Partnership's trade or business commences. If Genentech exercises its option to enter into the Joint Venture, or if the Partnership otherwise uses the Technology in a trade or business, the distributive share of a Foreign Taxpayer in income received by the Partnership from such use of the Technology may be effectively connected with the conduct of that trade or business and taxable as ordinary income to the Foreign Taxpayer at rates as high as 50%. If the Partnership licenses the Technology or sells the Technology to a third party pursuant to a contract having a purchase price more than half of which in the taxable year is contingent on the productivity, use or disposition of the Technology, the distributive share of a Foreign Taxpayer in such income may be subject to United States withholding tax at a rate of 30% of the gross amount of such income (subject to reduction by an income tax convention between the United States and another country which applies to the Foreign Taxpayer) or may be income effectively connected with the trade or business of the Partnership, and thus of the Foreign Taxpayer, and taxable at rates depending on whether it is capital gain or ordinary income. If

the Foreign Taxpayer should sell his Interest to Genentech pursuant to the Partnership Purchase Agreement. The gain on that sale would be taxable to the Foreign Taxpayer in the same manner as other Investors if the Foreign Taxpayer is engaged in a trade or business in the United States for its taxable year in which payments are received and if those payments are "effectively connected with" that trade or business. If Genentech exercises its rights under the Partnership Purchase Option, the first payment received by any Foreign Investor will be treated as effectively connected with a U.S. trade or business. Payments received in subsequent taxable years of that Foreign Investor, however, may avoid such treatment if the Foreign Investor is not then engaged in a trade or business in the United States. In that case, those payments to the Foreign Investor pursuant to the sale of his Interest may be subject to U.S. withholding tax or conceivably may be free of U.S. Federal income tax entirely.

Information Returns and Schedules. The Partnership will file an information return on IRS Form 1065 and will provide information on Schedule K-1 to each partner following the close of the Partnership's taxable year.

Changes in Law. All of the tax discussion herein and the opinion of Special Tax Counsel as to Federal income tax matters discussed above are based upon the law as of the date hereof. There can be no assurance that future changes in the Code, Regulations, IRS rulings or judicial decisions will not have the effect of significantly reducing the tax benefits associated with investments in the Partnership.

State and Local Taxes

In addition to the Federal income tax consequences described above, prospective Investors should consider the potential state and local tax consequences of an investment in the Partnership.

Depending on the location of the Partnership's business and the applicable state and local tax laws, some deductions and credits that are available to Investors for Federal income tax purposes may not be available for state or local tax purposes. Each prospective investor is advised to consult his own tax advisor to determine if and to what extent his distributive share of the income, gains, losses, deductions and credits of the Partnership would have tax consequences in the state and locality in which he is a resident.

The Partnership will be formed under the laws of, and will carry on most of its business in, California, where it will file appropriate tax returns. Although not presently contemplated, the Partnership may operate in other states or jurisdictions which impose taxes with respect to the activities or income of the Partnership. To the extent that the Partnership operates in such other jurisdictions, it may itself be subject to tax liability. In addition, Investors may be subject to tax return filing obligations and income, franchise, estate, inheritance or other taxes in jurisdictions in which the Partnership does business, as well as in their own states or localities of residence or domicile.

Importance of Obtaining Professional Advice

The foregoing analysis is not intended as a substitute for careful tax planning, particularly since the income tax consequences of an investment in the Partnership are complex and certain of these consequences could vary significantly with the particular situation of each prospective investor. Accordingly, prospective investors are strongly urged to consult their tax advisors with specific reference to their own situations regarding the possible tax consequences of investment in the Partnership.

SUBSCRIPTION PROCEDURES

In order to subscribe for Units, each prospective investor will be required to complete, execute and deliver the following to a Sales Agent as indicated in the subscription materials:

1. Two copies of the Subscription Agreement, which makes certain representations concerning such investor's subscription;

2. A certified or official bank check payable to Genentech Clinical Partners, Ltd., a Limited Partnership—Escrow Account, in the amount of \$50,000 for each Unit subscribed for, or alternatively, if the investor has selected the deferred payment option, a certified or official bank check in the amount of \$9,091 and an investor note (the "Investor Note") in the amount of \$40,909 for each Unit subscribed

for, with, in the case of subscriptions of partial Units, a proportionate reduction of the foregoing amounts;

3. The appropriate Prospective Purchaser Questionnaire and related subscription materials; and
4. Two counterpart signature pages to the Limited Partnership Agreement.

The cash payment of each prospective investor accompanying the Subscription Agreement will be deposited in a segregated, interest-bearing escrow account (the "Escrow Account") with Bank of America National Trust and Savings Association, as Escrow Agent (the "Escrow Agent"). Such cash, together with any Investor Note of such investor, will be held by such Escrow Agent pursuant to the terms of the Escrow Agreement dated as of October 1, 1982, among the Partnership, the Sales Agents and the Escrow Agent (the "Escrow Agreement"). If investors have not been admitted to the Partnership by November 30, 1982, the date this offering will terminate (which date may be advanced for a period of time not exceeding fifteen days or extended by the Sales Agents, after consultation with the General Partner, for a period of time not exceeding thirty-one days), the Escrow Agent will return to the investors the full cash amount, with accrued interest thereon, together with any Investor Notes. Upon the admission of the investors to the Partnership, such investors shall become Class A Limited Partners. Subscription amounts (and any interest accrued thereon) of subscribers who become Class A Limited Partners will be transferred to the Partnership upon consummation of this offering.

The Escrow Agent will have the authority to invest the funds in the Escrow Account and to disburse funds received in the account and earnings thereon. However, the Escrow Agent will have no responsibilities in respect of the acceptance or rejection of subscriptions or the adequacy of any documents.

The Subscription Agreement executed by each Investor grants the Partnership a security interest in the Investor's Interest to secure his obligations to the Partnership under his Investor Note.

Two-Day Rescission Right for Pennsylvania Residents. The Partnership has filed, and will amend as necessary, a notice of exemption as required by Section 203(d) of the Pennsylvania Securities Act of 1972 (the "Pennsylvania Act"). Section 207(m) of the Pennsylvania Act provides that any purchaser of securities in Pennsylvania, if such securities are exempted from registration pursuant to Section 203(d) of the Pennsylvania Act, may withdraw his purchase agreement and receive a full refund of all moneys paid, within two business days after he enters into a binding contract of purchase, or makes any payment for the securities being offered or the exemption becomes effective, whichever is later. Therefore, any Pennsylvania resident who has executed a Subscription Agreement, paid the purchase price for the Interests or paid the first installment and delivered his Investor Note, and received notification that a notice of exemption has been filed, is entitled to exercise the statutory rescission right within two business days after the later of (i) delivery of his cash payment or Investor Note and (ii) the execution of his Subscription Agreement. Such investor may exercise such right by telephone, telegram or letter notice to Cooley, Godward, Castro, Hudson & Tatum, counsel for the Partnership, Five Palo Alto Square, Suite 400, Palo Alto, California 94304 (telephone (415) 494-7622), attention: Lee F. Benton, Esq. Any telegram or letter should be sent or postmarked prior to the end of such second business day. Any letter should be mailed by certified mail, return receipt requested, to ensure its receipt and to evidence the time of mailing. Any oral requests should be confirmed in writing.

A condition of compliance with the Pennsylvania Act in connection with this offering is that each purchaser in Pennsylvania must agree not to sell his Interest within 12 months after the date of purchase. The Subscription Agreement contains such a provision. In addition to the one-year restriction, the Subscription Agreement contains a representation by all Investors that they are not purchasing with a view to distribution.

Three-Day Rescission Right for Florida Residents. Section 517.061(1)(e) of the Florida Securities Act (the "Florida Act") provides that any purchaser of securities in Florida, if such securities are exempted from registration under Section 517.061 of the Florida Act, may withdraw his subscription agreement and receive a full refund of all moneys paid, within three business days after he purchases such securities. Therefore, any Florida resident who purchases an Interest is entitled to exercise the foregoing statutory rescission right prior to three business days after purchasing such Interest by telephone, telegram or letter.

notice to Cooley, Godward, Castro, Huddleson & Tatum, counsel to the Partnership, Five Palo Alto Square, Suite 400, Palo Alto, California 94304 (telephone (415) 494-7622), attention: Lee F. Benton, Esq. Any telegram or letter should be sent or postmarked prior to the end of such third business day. Any letter should be mailed by certified mail, return receipt requested, to ensure its receipt and to evidence the time of mailing. Any oral requests should be confirmed in writing.

TRANSFERABILITY OF INTERESTS

The Interests are subject to strict limitations upon transferability pursuant to the terms of the Partnership Agreement. An Investor may assign his Interest to qualified investors only if certain conditions are satisfied. The assignee must, at the time of the assignment, meet all suitability standards as set forth above under the caption "Suitability Standards", and other requirements applicable to the original Investors and must consent in writing, in form satisfactory to the General Partner, to be bound by all the terms of the Partnership Agreement. Immediately after the assignment, neither the assignee nor the assignor, if the assignor retained any part of his Interest, may hold less than \$100,000 in Interest. The assignor must have paid in full, in cash, his capital contribution. Counsel for the assignee must have delivered an opinion (which counsel and opinion are satisfactory to counsel for the General Partner) that such Interest may be legally sold or distributed in compliance with then-applicable State and Federal statutes. The General Partner must have consented in writing to the assignment, which consent may be withheld in its absolute discretion. In any event, no assignment may be made which, in the opinion of counsel to the Partnership, would cause a termination of the Partnership for the purposes of the Internal Revenue Code or would violate any applicable governmental rule or regulation, including, without limitation, any applicable Federal or State securities law. Upon request of the General Partner, the assignor will pay all reasonable expenses, including attorneys' fees, incurred by the Partnership in connection with the assignment of the Interest. Any purported assignment which is not in compliance with the Partnership Agreement is null and void and of no force or effect whatsoever. No assignment to a minor (except in trust or pursuant to the Uniform Gifts to Minors Act) or to an incompetent shall be effective.

Any sale or transfer of an Interest, or any interest therein, in California or involving a California resident requires the prior written consent of the Commissioner of Corporations of the State of California, except as provided in the Commissioner's Rules. Additionally, the Subscription Agreement will bear the following legend:

"IT IS UNLAWFUL TO CONSUMMATE A SALE OR TRANSFER OF THIS SECURITY, OR ANY INTEREST THEREIN, OR TO RECEIVE ANY CONSIDERATION THEREFOR, WITHOUT THE PRIOR WRITTEN CONSENT OF THE COMMISSIONER OF CORPORATIONS OF THE STATE OF CALIFORNIA, EXCEPT AS PERMITTED IN THE COMMISSIONER'S RULES."

The assignee of an Interest does not become a Limited Partner by virtue of such assignment, and obtains no rights other than the right to receive, after the effective date of the assignment, distributions from the Partnership and to receive allocations of the profits or losses of the Partnership. An assignee of an Interest may become a substituted Limited Partner only upon the written consent of the General Partner, which may be withheld in its absolute discretion. In any event, such consent shall be given only if the assignee executes and acknowledges such instruments as the General Partner deems necessary or desirable to give effect to such substitution. The substituted Limited Partner shall pay all reasonable expenses, including attorney's fees, incurred by the Partnership in connection with such substitution of the Limited Partner.

In addition to the restrictions on the transferability of the Interests set forth in the Partnership Agreement as described above, the alienability of the Interests is further restricted by the Securities Act of 1933. A registration statement has not been filed with the Securities and Exchange Commission ("SEC") in connection with this offering. The Interests are being privately offered pursuant to an exemption from the registration requirements. The Interests must be purchased for investment only and not with a view towards distribution. An Investor's right to dispose of or transfer his Interest is limited by the requirements of the

Act and the Rules and Regulations of the SEC thereunder and Interests cannot be offered or resold without either registration under the Act or an exemption therefrom.

CERTAIN LEGAL MATTERS

Davis Polk & Wardwell, New York, New York, has acted as special counsel to the Partnership for the purpose of rendering an opinion with respect to certain Federal income tax matters. Davis Polk & Wardwell has also acted as counsel for Medical Investors Corporation and the Sales Agents in connection with the offering of the Interests. Cooley, Godward, Castro, Huddleson & Tatum, San Francisco, California, has acted as special counsel for the Partnership and counsel for the General Partner. Neither counsel has been engaged to protect the interests of Investors.

REPORTS

Financial information contained in all reports to the Investors will be prepared on a tax basis of accounting. Tax information will be provided to the Investors within 75 days following the close of each fiscal year. Within 120 days after the end of each fiscal year, the Investors will be furnished an annual report containing financial statements of the Partnership certified by independent public accountants. Such annual report will also include a general description of the activities of the Partnership during the period covered by the report and a description of any material transactions between the Partnership and the General Partner or any of its affiliates. Within 60 days after the end of each fiscal quarter, the Investors will be furnished a quarterly report containing an unaudited balance sheet as at the end of such quarter, a statement of income for the period covered by the report and a description of material events in the Partnership's operations.

SALES AGENTS

The Sales Agents have provided in the past and may continue to provide investment banking services for Genentech. Thomas J. Perkins, a limited partner of Hambrecht & Quist, one of the Sales Agents, is Chairman of the Board of Directors of Genentech.

GENENTECH CLINICAL
PARTNERS II

\$33,850,000
Limited Partnership
Interests
Offered in Units
Of \$50,000

1983

\$32,250,000**GENENTECH CLINICAL PARTNERS II**

645 Units of Limited Partnership Interests
\$50,000 Per Unit — Minimum Investment One Unit

	<i>Price to Investors(1)</i>	<i>Selling Commissions and Investment Banking Fees(1)(2)</i>	<i>Proceeds to Partnership(3)</i>
Minimum Investment	\$50,000	\$4,500	\$45,500
Maximum Total(4)	\$32,250,000	\$2,902,500	\$29,347,500

- (1) The minimum investment is one Unit, except that Genentech Clinical Partners II (the "Partnership") may make sales consisting of a partial Unit to not more than 35 employees, directors or consultants of Genentech, Inc. ("Genentech"), the parent of Genentech Development Corporation, the general partner (the "General Partner") of the Partnership. Employees, directors and consultants (who have written consulting agreements with Genentech) of Genentech ("Genentech Investors") and investors ("Investors" or "Limited Partners") who purchase ten or more Units will be entitled to purchase the limited partnership interests offered hereby ("Interests"), at a reduction in the offering price per Unit equal to the reduction in fees payable to the sales agent named below (the "Sales Agent"), or its affiliates, in respect of the sales of such Units. Except as set forth below, selling commissions of 7% and investment banking fees of 2% apply to sales of Units to Investors. The selling commissions payable in respect of sales to Investors who purchase at least ten and fewer than 20 Units will be reduced to 4% and the selling commissions payable in respect of sales to Investors who purchase 20 or more Units will be reduced to 3%. No selling commissions or investment banking fees will be payable in respect of sales of up to \$2,000,000 of Interests to Genentech Investors. See "Plan of Distribution".
- (2) The Interests will be offered and sold on a "best efforts" basis exclusively through the Sales Agent, or its affiliates, and, at the discretion of the Sales Agent, or its affiliates, after consultation with the General Partner, through one or more selected dealers.
- (3) Before deducting expenses related to this offering, payable by the Partnership, estimated to be approximately 2% of the aggregate purchase price of the Interests. Cash paid by subscribers will be deposited in a segregated, interest bearing escrow account with The First National Bank of Boston (the "Escrow Agent") pursuant to an escrow agreement dated as of May 9, 1983 between the Sales Agent and the Escrow Agent.
- (4) Does not include any of 32 additional Units (\$1,600,000) which may be sold as an overallotment by mutual agreement of the Sales Agent and the General Partner. See "Plan of Distribution".

NO PERSON SHALL BE ACCEPTED AS A LIMITED PARTNER PRIOR TO THE CLOSING OF THE SALE OF INTERESTS. THE GENERAL PARTNER OR THE SALES AGENT, OR ITS AFFILIATES, IN THEIR ABSOLUTE DISCRETION, MAY REJECT THE SUBSCRIPTION REQUEST OF ANY PERSON AT ANY TIME PRIOR TO SUCH CLOSING. ANY REPRESENTATION TO THE CONTRARY IS UNAUTHORIZED AND MUST NOT BE RELIED UPON.

THE PURCHASE OF THESE INTERESTS WILL ENTAIL A HIGH DEGREE OF RISK. NO PERSON SHOULD INVEST IN THESE INTERESTS WHO IS NOT IN A POSITION TO LOSE HIS ENTIRE INVESTMENT. SEE "RISK FACTORS". INVESTORS WILL BE REQUIRED TO MAKE REPRESENTATIONS WITH RESPECT TO THEIR NET WORTH AND INCOME AND TO REPRESENT, AMONG OTHER THINGS, THAT THEY ARE FAMILIAR WITH AND UNDERSTAND THE TERMS OF THIS OFFERING. SEE "SUITABILITY STANDARDS" AND "SUBSCRIPTION PROCEDURES".

BEPW DEVELOPMENT CORPORATION
a wholly owned subsidiary of
BLYTH EASTMAN PAINE WEBBER
INCORPORATED

The date of this Memorandum is May 9, 1983

243

THIS IS NOT AN OFFER TO SELL OR A SOLICITATION OF ANY OFFER TO BUY THE INTERESTS DESCRIBED HEREIN IN ANY JURISDICTION TO ANY PERSON TO WHOM IT IS UNLAWFUL TO MAKE SUCH AN OFFER OR SALE.

THIS OFFERING IS BEING MADE IN RELIANCE UPON AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OF 1933 FOR AN OFFER AND SALE OF INTERESTS WHICH DOES NOT INVOLVE A PUBLIC OFFERING. NO PUBLIC OR OTHER MARKET WILL DEVELOP FOR THE INTERESTS. INTERESTS ARE NOT TRANSFERABLE WITHOUT THE CONSENT OF THE GENERAL PARTNER AND SATISFACTION OF CERTAIN OTHER CONDITIONS. SEE "RISK FACTORS" AND "TRANSFERABILITY OF INTERESTS". PROSPECTIVE INVESTORS SHOULD PROCEED ONLY ON THE ASSUMPTION THAT THEY MAY HAVE TO BEAR THE ECONOMIC RISK OF AN INVESTMENT IN THE INTERESTS FOR AN INDEFINITE PERIOD OF TIME.

PROSPECTIVE INVESTORS ARE NOT TO CONSTRUE THE CONTENTS OF THIS MEMORANDUM AS INVESTMENT, TAX OR LEGAL ADVICE. THIS MEMORANDUM AND THE EXHIBITS HERETO AND OTHER DOCUMENTS DELIVERED HERewith, AS WELL AS THE NATURE OF AN INVESTMENT IN THE INTERESTS, SHOULD BE REVIEWED BY EACH PROSPECTIVE INVESTOR, HIS INVESTMENT, TAX OR OTHER ADVISORS, OR HIS ACCOUNTANTS OR LEGAL COUNSEL.

THE INTERESTS OFFERED HEREBY HAVE NOT BEEN REGISTERED WITH OR APPROVED BY THE UNITED STATES SECURITIES AND EXCHANGE COMMISSION OR THE SECURITIES REGULATORY AUTHORITY OF CERTAIN STATES, NOR HAS SUCH COMMISSION OR THE REGULATORY AUTHORITY OF ANY STATE PASSED UPON THE ACCURACY OR ADEQUACY OF THIS MEMORANDUM. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

NO GENERAL SOLICITATION WILL BE CONDUCTED AND NO OFFERING LITERATURE OR ADVERTISING IN WHATEVER FORM WILL OR MAY BE EMPLOYED IN THE OFFERING OF THESE INTERESTS, EXCEPT FOR THIS MEMORANDUM (INCLUDING AMENDMENTS AND SUPPLEMENTS TO THIS MEMORANDUM), THE EXHIBITS HERETO AND DOCUMENTS SUMMARIZED HEREIN OR ENCLOSED HERewith. NO PERSON IS AUTHORIZED TO GIVE ANY INFORMATION OR TO MAKE ANY REPRESENTATION NOT CONTAINED IN THIS MEMORANDUM OR IN THE EXHIBITS HERETO, AND, IF GIVEN OR MADE, SUCH OTHER INFORMATION OR REPRESENTATION MUST NOT BE RELIED UPON.

THE INFORMATION CONTAINED IN THIS MEMORANDUM HAS BEEN SUPPLIED BY THE GENERAL PARTNER, AND HAS BEEN INCLUDED HEREIN IN RELIANCE ON THE GENERAL PARTNER. THIS MEMORANDUM CONTAINS SUMMARIES, BELIEVED BY THE GENERAL PARTNER TO BE ACCURATE, OF CERTAIN DOCUMENTS, INCLUDING THE DOCUMENTS DESCRIBED UNDER "SUMMARY OF MATERIAL CONTRACTS" AND "SUMMARY OF THE LIMITED PARTNERSHIP AGREEMENT", SET FORTH IN THIS MEMORANDUM, BUT REFERENCE IS HEREBY MADE TO THE LIMITED PARTNERSHIP AGREEMENT, ATTACHED AS EXHIBIT A TO THIS MEMORANDUM, AND THE ACTUAL CONTRACTS, COPIES OF WHICH ARE AVAILABLE AT THE OFFICES OF GENENTECH DEVELOPMENT CORPORATION, 460 POINT SAN BRUNO BLVD., SOUTH SAN FRANCISCO, CALIFORNIA 94080, ATTENTION: MS. ANNE D. GUNDERSON, OR BEPW DEVELOPMENT CORPORATION, 1221 AVENUE OF THE AMERICAS, NEW YORK, NEW YORK 10020, ATTENTION: MR. STEPHEN EVANS-FREKE, FOR COMPLETE INFORMATION CONCERNING THE RIGHTS AND OBLIGATIONS OF THE PARTIES THERETO. ALL SUCH SUMMARIES ARE QUALIFIED IN THEIR ENTIRETY BY THIS REFERENCE.

ANY INVESTOR MAY ASK QUESTIONS AND RECEIVE ANSWERS CONCERNING THE TERMS AND CONDITIONS OF THIS OFFERING OR REQUEST ADDITIONAL INFORMATION TO VERIFY THE INFORMATION CONTAINED HEREIN BY CALLING DURING NORMAL BUSINESS HOURS OR WRITING GENENTECH DEVELOPMENT CORPORATION AT THE ADDRESS SET FORTH ABOVE.

THIS OFFER CAN BE WITHDRAWN AT ANY TIME BEFORE CLOSING AND IS SPECIFICALLY MADE SUBJECT TO THE TERMS DESCRIBED IN THIS MEMORANDUM. THE GENERAL PARTNER AND THE SALES AGENT EACH RESERVE THE RIGHT TO REJECT ANY SUBSCRIPTION IN WHOLE OR IN PART OR TO ALLOT TO ANY PROSPECTIVE INVESTOR LESS THAN THE NUMBER OF UNITS SUBSCRIBED FOR BY SUCH PROSPECTIVE INVESTOR. PRIOR TO

THE CONSUMMATION OF THE OFFERING, ALL SUBSCRIPTION FUNDS AND INVESTOR NOTES WILL BE DEPOSITED WITH THE FIRST NATIONAL BANK OF BOSTON, AS ESCROW AGENT, TO BE HELD FOR THE INVESTORS. SEE "SUBSCRIPTION PROCEDURES".

THIS MEMORANDUM HAS BEEN PREPARED SOLELY FOR THE BENEFIT OF PROSPECTIVE INVESTORS INTERESTED IN THE PROPOSED PRIVATE PLACEMENT OF THE INTERESTS AND CONSTITUTES AN OFFER ONLY IF THE NAME OF THE PROSPECTIVE INVESTOR APPEARS IN THE APPROPRIATE SPACE PROVIDED ABOVE. DISTRIBUTION OF THIS MEMORANDUM TO ANY PERSON OTHER THAN SUCH PROSPECTIVE INVESTOR AND THOSE PERSONS RETAINED TO ADVISE HIM WITH RESPECT THERETO IS UNAUTHORIZED, AND ANY REPRODUCTION OF THIS MEMORANDUM, IN WHOLE OR IN PART, OR THE DIVULGENCE OF ANY OF ITS CONTENTS, WITHOUT THE PRIOR WRITTEN CONSENT OF THE GENERAL PARTNER, IS PROHIBITED. EACH PROSPECTIVE INVESTOR, BY ACCEPTING DELIVERY OF THIS MEMORANDUM, AGREES TO RETURN IT AND ALL OTHER DOCUMENTS TO THE SALES AGENT AT ITS ADDRESS SPECIFIED ABOVE IF THE PROSPECTIVE INVESTOR DOES NOT SUBSCRIBE FOR THE PURCHASE OF THE INTERESTS, THE PROSPECTIVE INVESTOR'S SUBSCRIPTION IS NOT ACCEPTED OR THE OFFERING IS TERMINATED.

WITH REGARD TO CALIFORNIA RESIDENTS, IT IS UNLAWFUL TO CONSUMMATE A SALE OR TRANSFER OF ANY OF THE SECURITIES OFFERED HEREBY, OR ANY INTEREST THEREIN, OR TO RECEIVE ANY CONSIDERATION THEREFOR, WITHOUT THE PRIOR WRITTEN CONSENT OF THE COMMISSIONER OF CORPORATIONS OF THE STATE OF CALIFORNIA, EXCEPT AS PERMITTED IN THE COMMISSIONER'S RULES.

WITH REGARD TO FLORIDA RESIDENTS, THE INTERESTS OFFERED HEREBY WILL BE SOLD TO, AND ACQUIRED BY, THE HOLDER IN A TRANSACTION EXEMPT UNDER SECTION 517.061 OF THE FLORIDA SECURITIES ACT. THE INTERESTS HAVE NOT BEEN REGISTERED UNDER SAID ACT IN THE STATE OF FLORIDA. IN ADDITION, ALL FLORIDA RESIDENTS SHALL HAVE THE PRIVILEGE OF VOIDING THE PURCHASE WITHIN THREE (3) DAYS AFTER MAKING SUCH PURCHASE.

WITH REGARD TO PENNSYLVANIA RESIDENTS, SECTION 207(m) OF THE PENNSYLVANIA SECURITIES ACT OF 1972 PROVIDES THAT ANY PURCHASER OF INTERESTS IN PENNSYLVANIA HAS THE RIGHT TO RESCIND HIS AGREEMENT TO PURCHASE INTERESTS OFFERED HEREBY WITHIN TWO (2) BUSINESS DAYS AFTER THE LATER OF (i) THE EXECUTION OF HIS SUBSCRIPTION AGREEMENT AND (ii) DELIVERY OF HIS INVESTOR NOTE AND PAYMENT OF HIS CASH CAPITAL CONTRIBUTION, AND, UPON SUCH RESCISSION, TO RECEIVE A FULL REFUND OF HIS CAPITAL CONTRIBUTION.

THE STATE CORPORATION COMMISSION OF VIRGINIA HAS NOT PASSED UPON THE ADEQUACY OR ACCURACY OF THE DISCLOSURE CONTAINED IN THIS MEMORANDUM NOR HAS IT PASSED UPON THE MERITS OF THE OFFERING. THE COMMISSION EXPRESSES NO OPINION AS TO THE QUALITY OF THE SECURITIES OFFERED HEREBY.

THE SECURITIES OFFERED HEREBY HAVE BEEN REGISTERED WITH THE CORPORATION COMMISSIONER OF THE STATE OF OREGON UNDER PROVISIONS OF OAR 815 DIVISION 36. POTENTIAL INVESTORS ARE ADVISED THAT THE COMMISSIONER HAS MADE ONLY A CURSORY REVIEW OF THIS MEMORANDUM AND HAS NOT REVIEWED THIS DOCUMENT SINCE IT IS NOT REQUIRED TO BE FILED WITH THE COMMISSIONER. THE INVESTOR MUST RELY ON THE INVESTOR'S OWN EXAMINATION OF THE ISSUER OF THE SECURITIES OFFERED HEREBY AND THE TERMS OF THE OFFERING, INCLUDING THE MERITS AND RISKS INVOLVED IN MAKING AN INVESTMENT DECISION ON THESE SECURITIES.

THESE SECURITIES ARE OFFERED PURSUANT TO A CLAIM OF EXEMPTION UNDER THE ALABAMA SECURITIES ACT. A REGISTRATION STATEMENT RELATING TO THE SECURITIES OFFERED HEREBY HAS NOT BEEN FILED WITH THE ALABAMA SECURITIES COMMISSION. THE COMMISSION DOES NOT RECOMMEND OR ENDORSE THE PURCHASE OF ANY OF THESE SECURITIES, NOR DOES IT PASS UPON THE ACCURACY OR COMPLETENESS OF THIS PRIVATE PLACEMENT MEMORANDUM. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

GLOSSARY OF TECHNICAL TERMS

The following terms are used throughout this Memorandum:

<i>Deep vein thrombosis</i>	An obstruction of the deep veins caused by a blood clot.
<i>DNA</i>	Deoxyribonucleic acid, the chemical carrying the hereditary material of most living organisms.
<i>Embolism</i>	A blockage of a vein or artery caused by a blood clot that originated elsewhere in the circulatory system.
<i>Efficacy</i>	Effectiveness for intended use.
<i>Fibrin</i>	A fibrous protein that binds together a blood clot.
<i>FDA</i>	United States Food and Drug Administration.
<i>Formulation</i>	A combination of t-PA with other material to create a human pharmaceutical product.
<i>In vivo experiments</i>	Experimental testing performed in living organisms.
<i>IND</i>	Notice of claimed investigational exemption for a new drug submitted to the FDA.
<i>Indication</i>	A set of symptoms characteristic of a particular disease state.
<i>Myocardial infarction</i>	An obstruction of the arteries of the heart, often the cause of heart attack.
<i>Natural sources</i>	Sources other than recombinant DNA or chemical synthesis.
<i>NDA</i>	New drug application submitted to the FDA containing data demonstrating that a drug is safe, effective and produced in accordance with good manufacturing practice.
<i>Peripheral arterial occlusion</i>	An obstruction of the peripheral arteries.
<i>Plasmid</i>	A circular strand of DNA.
<i>Plasmin</i>	A protein that dissolves fibrin.
<i>Plasminogen</i>	An inactive protein in the blood that converts to plasmin.
<i>Protocol</i>	A program of testing the effectiveness and safety of a pharmaceutical product.
<i>Pulmonary embolism</i>	An obstruction of the blood vessels of the lungs caused by a blood clot.
<i>Recombinant</i>	Pertaining to the recombination of elements in a new fashion.
<i>Systemic</i>	Occurring throughout the circulatory system.
<i>Thrombolytic</i>	Having the ability to dissolve clots.
<i>T-PA</i>	Tissue-type plasminogen activator.

INDEX

	<u>Page</u>
Summary of the Offering	6
Investor Suitability	10
The Business of the Partnership	11
Development Program	11
Product Objectives	12
Patent Rights and Other Proprietary Rights	16
Marketing Plans	17
Use of Proceeds	18
Business Plan Product Revenue Assumptions	18
Risk Factors	19
Fiduciary Responsibility of the General Partner	26
Summary of Material Contracts	26
Summary of the Limited Partnership Agreement	33
The Partnership and the General Partner	39
Description of Genentech, Inc.	41
Summary of Income Tax Consequences	45
Plan of Distribution	62
Subscription Procedures	63
Employee Subscriptions	63
Transferability of Interests	64
Certain Legal Matters	65
Reports	66
Sales Agent	66
Exhibit A—Limited Partnership Agreement	
Exhibit B—Financial Statements of the General Partner	

TABLES

	<u>Page</u>
Minimum Investment and Schedule of Payments	7
Use of Proceeds	7
Potential Markets to be Addressed by the Partnership's Products	7
Product Revenue Assumptions	7
Potential Financial Returns Summary	9
Potential Financial Returns—Cash	9
Estimated Partnership Receipts and Disbursements	18
Development Budget	18
Estimated t-PA Sales	19
Genentech, Inc., Statement of Operations	44
Genentech, Inc., Condensed Balance Sheet	44

SUMMARY OF THE OFFERING

This summary is qualified in all respects by the remainder of this Memorandum, which includes Genentech financial information, and which should be read in its entirety.

The annual financial statements of Genentech have been audited by Arthur Young & Company. The projections contained herein, including potential financial returns to investors, have not been audited or reviewed by Arthur Young & Company.

The Business of the Partnership

The principal business objective of the Partnership is to derive income from the manufacture and sale of tissue-type plasminogen activator (t-PA) for human pharmaceutical use in the United States.

The Partnership will hold a license for the manufacture and sale of t-PA human pharmaceutical products in the United States, using recombinant DNA technology developed by Genentech. Based upon early published studies and pre-clinical work by Genentech and its collaborators, t-PA shows promise as a treatment for dissolving blood clots that are a major cause of many cardiovascular diseases. However, existing data is limited and extensive human clinical testing will be required prior to market approval.

- During the development period, the principal activities of the Partnership will be to:
- Conduct the extensive human clinical trials necessary to establish the safety and efficacy of t-PA;
 - Seek necessary FDA approvals to manufacture and market t-PA in the United States; and
 - Continue development programs to improve yields and scale up processes to manufacture t-PA.

The Partnership intends to obtain FDA approval for the following major indications:

- Heart attack or myocardial infarction (obstruction of the arteries of the heart);
- Pulmonary embolism (obstruction of the blood vessels of the lungs);
- Deep vein thrombosis (obstruction of the deep veins); and
- Peripheral arterial occlusion (obstruction of the peripheral arteries).

Summary of Principal Risk Factors

- | | |
|---|--|
| • No assurance of efficacy of t-PA | • Regulation by government agencies |
| • Possibility of adverse side effects | • Limited manufacturing and marketing experience |
| • No assurance of FDA approvals or timing thereof | • Possible need for additional funds |
| • No assurance of market acceptance | • Potential product liability |
| • No assurance of commercial scale production | • Conflicts of interest |
| • Potential competition | • Tax risks |
| • No assurance of Joint Venture or Partnership Purchase | • Very limited liquidity |

Summary of Tax Aspects

- A substantial part of Investors' payments to the Partnership should be currently deductible as research or experimental expenditures.
- Partnership income during the Joint Venture stage will be taxable as ordinary income.
- Substantially all of the value of Genentech common stock and a substantial part of the payment stream received, as applicable, under the Partnership Purchase Agreement should be taxable as long-term capital gain and the remainder will be taxable as ordinary income.

An opinion in the form set forth under the caption "Summary of Income Tax Consequences" will be obtained from Davis Polk & Wardwell, Special Tax Counsel to the Partnership, as to the principal Federal income tax consequences of an investment in the Partnership.

Minimum Investment and Schedule of Payments

The minimum investment will be one Unit of \$50,000. Investors will pay the purchase price for each Unit in four installments, as follows:

<u>Date</u>	<u>Amount Per Unit</u>	<u>Expected Deductibility</u>
At Subscription	\$15,000	71%
July 1, 1984	12,500	92
July 1, 1985	12,500	94
July 1, 1986	10,000	101
	<u>\$50,000</u>	88%

The General Partner has committed to review the status of the development program prior to the date of each installment.

Use of Proceeds

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>Total*</u>
	(In Millions)				
Development Budget					
Research					
Applied	\$1.2	\$ 1.8	\$1.6	\$0.1	\$ 4.7
Clinical	2.1	4.4	4.3	1.3	12.1
Development	3.7	3.8	3.8	0.5	11.8
Selling and Organizational Expenses	2.8	0.7	—	—	3.5
Joint Venture Contribution	—	—	0.5	—	0.5
Total	<u>\$9.8</u>	<u>\$10.7</u>	<u>\$10.2</u>	<u>\$1.9</u>	<u>\$32.6</u>

*Includes General Partner's contribution.

Potential Markets to be Addressed by the Partnership's Products

(See "The Business of the Partnership—Product Objectives")

<u>Disease Indication</u>	<u>Estimated Eligible Patient Population*</u>
Myocardial Infarction	750,000
Pulmonary Embolism	200,000
Deep Vein Thrombosis	175,000
Peripheral Arterial Occlusion	55,000

*Annual estimates, based on various authoritative sources including the American Heart Association and the National Center for Health Statistics and on surveys conducted on behalf of Genentech and others.

Product Revenue Assumptions

(See "Business Plan Product Revenue Assumptions")

	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991-98 (average annual)</u>
	(In Millions)						
Estimated t-PA Sales	\$ 33	\$ 86	\$172	\$243	\$268	\$275	\$297

The Joint Venture

Upon FDA approval for the commercial sale of t-PA, Genentech has the option to enter into a Joint Venture with the Partnership to manufacture and market all of the Partnership's products, as they are approved by the FDA. During the Joint Venture period the Partnership will receive 22% of the Joint Venture's profits and losses. See "Summary of Material Contracts—Joint Venture Agreement".

Purchase of Limited Partnership Interests

Upon (a) the Limited Partners having received distributions from the Joint Venture equal to 15% of their capital contributions and the Joint Venture having been in existence for at least two years, or (b) the Joint Venture having been in existence for at least four years, whichever shall occur earlier, Genentech may exercise the Partnership Purchase Option.

If Genentech exercises the Partnership Purchase Option, each Limited Partner will have the opportunity to select one of two alternative forms of payment per Unit.

The two alternatives are:

Payment Stream Alternative

- Down payment of \$7,500 (credited against later payments)
- Quarterly payments to be based upon a percentage of revenue to Genentech from sales of t-PA in the United States, as follows:
 - 7% until the receipt of \$50,000,
 - 5% until the receipt of an additional \$50,000,
 - 3% through the end of the twelfth year of the payment stream.

In any event, the payment stream will terminate by the end of the year 2000.

Genentech Stock Alternative

- 1,000 shares of Genentech common stock (adjusted for stock splits, stock dividends and similar events).

If foreign sales of t-PA commence prior to FDA approval for a major indication of t-PA, the Limited Partners will receive payments of 3½% of Genentech's revenue from such sales until such approval is granted.

Genentech may at any time make an offer to buy out Investors, including while they are receiving the Payment Stream Alternative. If at any time Investors receiving payments under the Payment Stream Alternative represent fewer than 20% of all Units, Genentech may purchase for cash those payment rights at a predetermined formula price. See "Summary of Material Contracts—Joint Venture and Partnership Purchase Option Agreement" and "—Partnership Purchase Agreement".

Potential Financial Returns to Investors

If the revenue assumptions for t-PA are realized, the financial returns to Investors will be substantial. If Genentech exercises the Partnership Purchase Option, then each Investor will select either the Payment Stream Alternative (cash payments based on future sales of t-PA) or the Genentech Stock Alternative (1,000 shares of Genentech common stock for each Unit). Prospective Investors should be aware, however, that the revenue assumptions are only estimates and there can be no assurance that they will be attained or that Genentech will exercise the Joint Venture Option or the Partnership Purchase Option.

Each Investor should consider the possible tax consequences of the purchase of his Interest. See "Summary of Income Tax Consequences".

Potential Financial Returns Summary

	Assumed Market Price Per Share at 1/1/87	Pre-tax Cash on Cash	After-tax Cash on Cash	Internal Rate of Return*	Estimated Investment Period
<i>Payment Stream Alternative</i>	N.A.	4.4x	5.5x	36%	15.5 yrs.
<i>Genentech Stock Alternative</i>	\$ 35.00	1.0x	1.3x	14%	3.5 yrs.
	\$ 50.00	1.3x	1.8x	28%	3.5 yrs.
	\$100.00	2.3x	3.2x	60%	3.5 yrs.

*Annual effective rate which equates the present value of future returns to the present value of the investment outlay, after adjustment for all tax effects.

The following table shows potential financial returns for Investors who purchase one \$50,000 Unit and select the Payment Stream Alternative at the time that Genentech exercises the Partnership Purchase Option. Investors who select the Genentech Stock Alternative would receive (i) the same distributions up to the Partnership purchase date as Investors selecting the Payment Stream Alternative, and (ii) 1,000 shares of Genentech common stock at that date, and no further distributions.

Potential Financial Returns—Cash Per One Unit (\$50,000) Investment*

Year	Payment Amount	Potential Tax Deductions	Potential Cash Distributions	Cumulative Potential Cash Dis- tributions	Potential Tax Savings (Taxes Payable)	Annual Net Cash Flow	Cumulative Net Cash Position
1983	\$15,000	\$10,700	\$ —	\$ —	\$5,400	\$(9,600)	\$(9,600)
1984	12,500	11,500	—	—	5,800	(8,700)	(18,300)
1985**	12,500	11,800	4,500	4,500	3,600	(4,400)	(20,700)
1986**	10,000	10,100	11,600	16,100	(800)	800	(19,900)
1987***	—	—	26,200	42,300	(5,500)	20,700	800
1988	—	—	25,700	68,000	(6,000)	19,700	20,500
1989	—	—	20,800	88,800	(5,200)	15,600	36,100
1990	—	—	13,800	102,600	(3,700)	10,100	46,200
1991	—	—	18,400	121,000	(5,200)	13,200	59,400
1992	—	—	13,200	134,200	(3,900)	9,300	68,700
1993	—	—	13,400	147,600	(4,100)	9,300	78,000
1994	—	—	13,700	161,300	(4,300)	9,400	87,400
1995	—	—	13,900	175,200	(4,500)	9,400	96,800
1996	—	—	14,100	189,300	(4,700)	9,400	106,200
1997	—	—	14,400	203,700	(4,900)	9,500	115,700
1998	—	—	14,600	218,300	(5,100)	9,500	125,200

*All amounts have been rounded to the nearest hundred.

**Joint Venture assumed to be in operation 1985-86.

***Partnership Interests assumed to be purchased on 1/1/87.

Assumptions Underlying Potential Financial Returns

The above tables are based upon the assumptions set forth in "The Business of the Partnership—Product Objectives" and "Business Plan Product Revenue Assumptions" and the following additional critical assumptions. There is no assurance that any of these assumptions will be realized.

1. Investors' capital contributions will be \$32,250,000, paid as scheduled.
2. Approximately 88% of the Investors' capital contributions will be deductible for Federal income tax purposes.
3. Each Investor will reflect in his quarterly estimated tax return the tax consequences relating to his investment in the Partnership for such quarter.
4. The Joint Venture Option will be exercised by Genentech, the Joint Venture will be formed during the first quarter of 1985 and the Partnership will receive distributions quarterly during the duration of the Joint Venture.
5. Genentech will exercise the Partnership Purchase Option to purchase the Limited Partnership Interests on January 1, 1987, at which time each Investor will receive his choice of the Payment Stream Alternative, payable quarterly, or the Genentech Stock Alternative.
6. Investors are assumed to be in the 50% tax bracket.
7. Joint Venture distributions will be taxed as ordinary income. Consideration received under the Payment Stream Alternative or Genentech Stock Alternative will be taxed as long-term capital gains, except for a portion of the payment stream (based on 9% annual simple interest) which will be treated as interest income and taxed at ordinary income rates. Investors who choose the Genentech Stock Alternative will pay capital gains tax in the quarter in which they receive such stock.
8. There will be no effect on Investors of the Federal alternative minimum tax. However, the impact of this tax to each Investor, which will depend upon his particular tax situation, could lower the returns to him.
9. No effect has been given to state and local income taxes.

INVESTOR SUITABILITY

The Interests will be offered and sold only to prospective Investors who: (a) represent, among other things, that they are acquiring Interests for their own accounts, for investment only and not with a view toward the resale or distribution thereof, that they are aware that the Interests have not been registered under the Securities Act of 1933 (the "Act") and that their transfer rights are restricted by the Act, applicable state securities laws, the Limited Partnership Agreement dated as of May 9, 1983 (the "Partnership Agreement") and the absence of a market for the Interests; and (b) are investors meeting the suitability standards hereinafter set forth.

The Partnership will require as a general investor suitability standard that each Investor represent in writing that: (1) he is a natural person who has a net worth or joint net worth with his spouse exceeding \$1,000,000 at the time of his purchase, or (2) he is a natural person who had an individual income in excess of \$200,000 in each of the two most recent years and who reasonably expects an income in excess of \$200,000 in the current year, or (3) he or it is purchasing at least \$150,000 of the Interests, where his total purchase does not exceed 20% of his net worth, or joint net worth with his spouse, at the time of sale, or (4) he is a director or executive officer of the General Partner, or (5) it is either (a) a bank as defined in section 3(a)(2) of the Act whether acting in its individual or fiduciary capacity, (b) an insurance company as defined in section 2(13) of the Act, (c) an investment company registered under the Investment Company Act of 1940 or a business development company as defined in section 2(a)(48) of such Act, (d) a Small Business Investment Company licensed by the United States Small Business Administration under section 301(c) or (d) of the Small Business Investment Act of 1958 or (e) an employee benefit plan within the meaning of Title I of the Employee Retirement Income Security Act of 1974, if the investment decision is made by a plan fiduciary, as defined in section 3(21) of such Act, which plan fiduciary is either a bank, insurance company or registered investment advisor or if the employee benefit plan has total assets in excess of \$5,000,000, or (6) it is a private business development company as defined in section 202(a)(22) of the Investment Advisers Act of 1940, or (7) it is an organization described in section 501(c)(3) of the Internal Revenue Code with total assets in excess of \$5,000,000, or (8) it is a corporation or partnership, and each and every equity owner of such entity certifies that he meets the qualifications set forth in either (1), (2), (4), (5), (6) or (7) above, or (9) he is an Investor who meets the suitability standards set forth under the caption "Employee Subscriptions." As used in this Memorandum, the term "net worth" means the excess of total assets over total liabilities. In determining income, an Investor should add to his adjusted gross income any amounts attributable to tax exempt income received, losses claimed as a limited partner in any limited partnership, deductions claimed for depletion, contributions to an IRA or Keogh retirement plan, alimony payments, and any amount by which income from long-term capital gains has been reduced in arriving at adjusted gross income.

The suitability standards referred to above represent minimum suitability requirements for prospective Investors and the satisfaction of such standards by a prospective Investor does not necessarily mean that the Interests are a suitable investment for such prospective Investor. The General Partner or the Sales Agent, or its affiliates, may make or cause to be made such further inquiry and obtain such additional information as it deems appropriate with regard to the suitability of prospective Investors. The General Partner or the Sales Agent, or its affiliates, in their absolute discretion, may reject subscriptions, in whole or in part, in their absolute discretion.

THE SUITABILITY STANDARDS DISCUSSED ABOVE REPRESENT MINIMUM SUITABILITY STANDARDS FOR PROSPECTIVE INVESTORS. EACH PROSPECTIVE INVESTOR SHOULD DETERMINE WHETHER THIS INVESTMENT IS APPROPRIATE FOR SUCH INVESTOR.

NO PERSON SHALL BE ACCEPTED AS A LIMITED PARTNER PRIOR TO THE CLOSING OF THE SALE OF INTERESTS. THE GENERAL PARTNER OR THE SALES AGENT, OR ITS AFFILIATES, IN THEIR ABSOLUTE DISCRETION, MAY REJECT THE SUBSCRIPTION REQUEST OF ANY PERSON AT ANY TIME PRIOR TO SUCH CLOSING. ANY REPRESENTATION TO THE CONTRARY IS UNAUTHORIZED AND MUST NOT BE RELIED UPON.

THE BUSINESS OF THE PARTNERSHIP

The principal business objective of the Partnership is to derive income from the manufacture and sale of t-PA for human pharmaceutical use in the United States.

The Partnership will hold a license for the manufacture and sale of t-PA human pharmaceutical products in the United States, using recombinant DNA technology developed by Genentech. Based upon early published studies and pre-clinical work by Genentech and its collaborators, t-PA shows promise as a treatment for dissolving blood clots that are a major cause of many cardiovascular diseases. However, existing data is limited and extensive human clinical testing will be required prior to market approval.

During the development period, the principal activities of the Partnership will be to (1) conduct the extensive human clinical trials necessary to establish the safety and efficacy of t-PA, (2) seek FDA approvals to manufacture and market t-PA in the United States, and (3) continue development programs to improve yields and scale up processes to manufacture t-PA. The Partnership intends to concentrate its efforts in establishing t-PA as an indicated treatment for four disease states in which blood clots can precipitate life-threatening conditions: (1) heart attack or myocardial infarction (obstruction of arteries of the heart), (2) pulmonary embolism (obstruction of the blood vessels of the lungs), (3) deep vein thrombosis (obstruction of the deep veins), and (4) peripheral arterial occlusion (obstruction of the peripheral arteries).

T-PA is a naturally occurring substance that plays an essential role in dissolving blood clots in the body. Although it is possible through means other than recombinant DNA technology to isolate minute quantities of t-PA from human cells, the process is very difficult and expensive. These natural sources do not presently offer any practical possibility of producing sufficient quantity or quality of t-PA for widespread medical use. Genentech has been successful in using recombinant DNA technology to produce t-PA in relatively larger quantities with a high degree of purity.

In 1982 Genentech first produced t-PA in the laboratory using recombinant DNA technology. Human clinical testing for the first major indication is expected to commence in 1983. The Partnership's business plan assumes FDA marketing approval of t-PA for the first major indication in early 1985.

Development Program

The work that must be done by the Partnership in order to obtain FDA approval for t-PA will be similar to the work involved in introducing to market any major new pharmaceutical product and is expected to proceed as described below.

Pre-Clinical Studies and Submission of IND

Studies are conducted in the laboratory and in certain species of animals to gain preliminary information on the product's efficacy and to identify major safety problems that might be expected to arise when the drug is administered to humans. The results of these studies must be submitted to the FDA as part of an IND before approval can be obtained for the commencement of testing in humans.

Research—Clinical Testing

The clinical testing program required for approval of a new drug involves a three-phase process. In Phase 1, studies are conducted (typically on human volunteers) to determine the basic biological activity and side effects of the substance in humans. In Phase 2, studies are conducted on groups of patients afflicted with a specific disease in order to determine proper dosages and to gain preliminary evidence of efficacy and safety. The Partnership's present plan calls for Phase 1 and Phase 2 to be pursued concurrently on patients afflicted with particular diseases. Phase 3 involves large-scale studies conducted on patients afflicted with the disease in order to provide enough data for the statistical proof of safety and efficacy required by the FDA.

The data obtained from clinical testing, along with other information, are submitted to the FDA in order to obtain marketing approval for the product. Even after initial FDA approval has been granted, the General Partner may conduct further studies to provide additional data on safety or efficacy or to gain approval for the use of the drug as a treatment for other indications.

Approximately 42% of the development budget is expected to be expended for the Partnership's pre-clinical and clinical testing program. See "Use of Proceeds—Development Budget".

Research—Applied

The Partnership will sponsor an ongoing program of applied research to increase the production yields of t-PA by developing improved technology with respect to the production of t-PA.

In order for medical substances to be administered to human beings, they must be formulated with other materials (such as solvents, buffers and stabilizers) to create a stable and effective pharmaceutical product. The Partnership expects to develop an injectable formulation for t-PA which will be used in clinical testing. Because the Partnership will seek approval of t-PA for treatment of acute conditions in which injection into the blood stream (directly or through a catheter) is an appropriate means of delivery to patients, the Partnership does not anticipate developing alternative means of delivery of t-PA.

Approximately 17% of the development budget is expected to be expended on applied research. See "Use of Proceeds—Development Budget".

The Partnership does not expect to engage in basic research related to recombinant DNA technology.

Development of Manufacturing Process

As a condition of receiving FDA approval to market a drug in the United States, the applicant must demonstrate to the satisfaction of the FDA that the process used to manufacture that drug is safe and controllable, and that it conforms with Good Manufacturing Practices established by the FDA. The Partnership will also continue to develop manufacturing processes to enable the Partnership to meet the anticipated demand for t-PA following FDA approval. This component of the Partnership's development program will include efforts directed toward creating new fermentation and product recovery processes for the efficient and economic production of t-PA.

Approximately 41% of the development budget is expected to be expended to develop the manufacturing processes for t-PA. See "Use of Proceeds—Development Budget".

Product Objectives

The Substance

T-PA is a naturally occurring human protein produced by a number of different body tissues and by cells lining the blood vessels.

T-PA is part of a complex system in the body that creates and dissolves blood clots. When a blood vessel is injured, this system serves to stop the flow of blood from the injured blood vessel by the creation of a blood clot. This process is called coagulation. All blood clots contain a fiber-like protein called fibrin, which serves as the cohesive factor for the blood clots. When the wound is healed, an opposite process dissolves the clot. T-PA initiates this clot-dissolving process by converting plasminogen, an inactive protein normally present in circulating blood, into plasmin, which dissolves the fibrin that holds the clot together.

Early published studies indicate that t-PA operates to convert plasminogen to plasmin only when the t-PA is bound to fibrin. This means that t-PA appears to act selectively at the site of blood clots and not throughout the entire blood system. Such selective operation minimizes the risk of hemorrhaging and other adverse side effects when compared to the operation of other currently marketed anti-clotting or clot dissolving drugs, which do not operate specifically at the site of clots, but rather operate indis-

criminally throughout the system. Based on animal studies, t-PA appears to have a short half-life in that it is cleared from the circulatory system in a relatively short period after administration, thereby further reducing the risk of adverse side effects. See "Risk Factors—Possible Side Effects".

Until the development of recombinant DNA technology, extraction from human cells was the only means of obtaining t-PA. T-PA is extremely difficult and expensive to produce by extraction from human cells, however, and t-PA from these natural sources has been relatively impure. Although t-PA was first discovered in 1947, medical researchers have been hampered until recently in discovering t-PA's properties and clinical uses because of the small and impure quantities available. In 1979 a group headed by Dr. Désiré Collen at the Center for Thrombosis and Vascular Research at the University of Leuven in Belgium was able to isolate and purify enough t-PA from natural sources to conduct pilot studies in dogs and rabbits and limited clinical tests in humans.

Genentech, working with materials provided by Dr. Collen, was able in 1982 to identify the structure of t-PA and first produce small quantities of highly pure t-PA in the laboratory using recombinant DNA technology.

In 1982 Dr. Collen's team, operating under an exclusive scientific collaboration agreement with Genentech, demonstrated in *in vivo* experiments with rabbits the effectiveness of Genentech's t-PA. In such experiments, Genentech's t-PA proved as effective in dissolving clots as naturally derived t-PA. Laboratory tests performed to date by Genentech suggest that t-PA produced by means of recombinant DNA technology exhibits the same properties as the protein derived from natural sources.

Potential Clinical Uses

Blood clots are a major cause of many cardiovascular diseases, which are the leading cause of death in the United States. By obstructing a blood vessel or lodging at an inappropriate place, such clots can precipitate heart attacks or grave injury to the lungs. These clots are also prone to form in the legs or other extremities, where they can obstruct veins or arteries and permanently hamper circulation or break away to lodge in the lung.

Based on early published studies and pre-clinical work by Genentech and its collaborators, the General Partner believes that t-PA may prove more effective in dissolving injurious blood clots than currently available thrombolytic (clot-dissolving) drugs. If effective, t-PA might be administered, for example, during the early stages of a heart attack to unblock the clogged coronary artery and might thereby save a substantial part of the heart muscle that would otherwise die from lack of oxygen. Based on such studies and pre-clinical work, the General Partner believes t-PA might be used similarly to treat pulmonary embolism, deep vein thrombosis and peripheral arterial occlusion by dissolving clots in the lungs or extremities. However, existing data is limited and extensive human clinical testing will be required to determine whether t-PA will prove effective on humans in practice.

The potential of t-PA as a therapy for heart attack, pulmonary embolism, deep vein thrombosis and peripheral arterial occlusion is due in significant part to the fact that, as indicated in early published studies and pre-clinical work, t-PA acts specifically at the site of clots, where fibrin is present, and does not disturb the delicate balance of blood factors that control clotting throughout the circulatory system. Any therapy that upsets this delicate balance, such as by converting plasminogen to plasmin throughout the circulatory system or by destroying other blood factors important for clotting, can create a serious risk of hemorrhage. Based upon the work to date, the General Partner believes that treatment with t-PA will minimize the risk of hemorrhage when compared with other therapies. In addition, the General Partner believes this site specific action of t-PA should permit the effective administration of t-PA by its injection intravenously and in quantities substantially smaller than would be required if it acted generally throughout the circulatory system.

By contrast, the other currently used clot-dissolving drugs, streptokinase and urokinase, act on plasminogen throughout the circulatory system. The systemic action of these drugs also results in the

destruction of other blood factors that balance the coagulation system. These effects make hemorrhage a significant risk of therapy with these drugs. Also, larger doses of streptokinase and urokinase are required to dissolve a clot than would be required if such drugs operated on a site specific basis. See "Competition" below.

The Partnership intends to seek FDA approval for administration of t-PA by intravenous injection for myocardial infarction, pulmonary embolism and deep vein thrombosis. For peripheral arterial occlusion, the Partnership intends to seek FDA approval for administration of t-PA by catheterization, since medical procedures for peripheral arterial occlusion generally include catheterization in any case. Although the Partnership may later seek FDA approval for intravenous administration of t-PA for peripheral arterial occlusion, such approval is not presently included in the Partnership's business plan.

Market Analysis

The General Partner believes that the potential markets for t-PA present a major opportunity. Achievement of the Partnership's business plan is based on each of the following critical assumptions. The Partnership believes that these assumptions are reasonable based on information currently available. There can be no assurance, however, that these assumptions will be realized.

1. T-PA will be safe and effective in treatment of myocardial infarction, pulmonary embolism and deep vein thrombosis when administered by intravenous injection, and in treatment of peripheral arterial occlusion when administered by catheterization, and side effects will be at an acceptable level.

2. T-PA will prove significantly more site specific in its activity than other currently available clot-dissolving agents.

3. FDA approval for the marketing of t-PA will be granted in early 1985 with respect to myocardial infarction, and during 1986 for pulmonary embolism, deep vein thrombosis and peripheral arterial occlusion.

4. The planned process development, manufacturing scale-up work and clinical trials will be completed without major delays, thereby enabling the Partnership to establish a strong market position for t-PA in the United States prior to the entry of any significant competition.

5. The Partnership will have an adequate patent position with respect to t-PA produced by recombinant DNA technology.

6. Following FDA approval for particular indications, t-PA will receive general market acceptance in the medical community as a treatment for such indications.

Myocardial Infarction

The American Heart Association ("AHA") has estimated that as many as 1,500,000 Americans may have a heart attack this year. Based on information from the AHA and other authoritative sources and surveys conducted on behalf of Genentech, the General Partner estimates an eligible patient population of 750,000 in 1983.

Based upon the assumptions set forth above, the General Partner believes that t-PA will ultimately achieve a market share of approximately 50% of the eligible patient population suffering heart attacks in the United States. Such treatment would then account for a substantial percentage of the sales of t-PA.

Pulmonary Embolism

Authoritative sources indicate that as many as 500,000 persons per year in the United States may suffer from pulmonary embolism. Studies conducted on behalf of Genentech indicate that approximately 200,000 cases per year in the United States are diagnosed. On this basis, the General Partner estimates an eligible patient population of 200,000 in 1983. Based upon the assumptions set forth above, the General Partner believes that t-PA will ultimately achieve a market share of approximately 30% of the eligible patient population.

Deep Vein Thrombosis

The deep vein thrombosis market is more difficult to assess than the myocardial infarction and pulmonary embolism markets, since deep vein thrombosis is less likely to be detected and diagnosed than the other two diseases. Studies conducted on behalf of Genentech indicate that approximately 175,000 persons per year in the United States are diagnosed as suffering from deep vein thrombosis. This excludes those patients who also are diagnosed as having pulmonary embolism with associated deep vein thrombosis. On this basis the General Partner estimates an eligible patient population of 175,000 in 1983. Based upon the assumptions set forth above, the General Partner believes that t-PA will ultimately achieve a market share of approximately 30% of the eligible patient population.

Peripheral Arterial Occlusion

Authoritative sources indicate that in 1981 there were approximately 110,000 new patient visits to physicians for peripheral arterial occlusion and about half of those patients received anticoagulant or thrombolytic therapy. The General Partner estimates an eligible patient population of 55,000 in 1983. Based upon the assumptions set forth above, the General Partner believes that t-PA will ultimately achieve a market share of approximately 30% of the eligible patient population.

Other Indications

T-PA may also eventually prove effective for other indications caused by obstruction of blood vessels by clots, such as central retinal vein occlusion (which is a significant cause of blindness in one eye), clotting of arterial venous shunts in hemodialysis patients and the majority of strokes. The Partnership's development budget does not presently include clinical testing for any of these indications. The Partnership's product revenue assumptions do not include revenues derived from the marketing of t-PA for any of these indications. Existing data is very limited and extensive human testing would be required to determine whether t-PA would prove effective in any of these indications.

Clinical Testing and Product Development

Genentech and its collaborators have performed pre-clinical studies with t-PA produced by means of recombinant DNA technology and the Partnership expects to develop a formulation of the drug capable of being delivered by intravenous injection or catheterization. Genentech is currently in the process of identifying patient populations and clinical investigators and is developing protocols for the clinical testing, which is anticipated to commence in late 1983. See "Potential Clinical Uses" above.

The clinical program for t-PA will be very extensive for each of the intended markets. As many as 1,000 patients are expected to be included in the clinical programs. The initial clinical trials will focus primarily on the myocardial infarction indications, with first FDA approval expected in early 1985. Concurrently with the clinical tests for myocardial infarction, the Partnership plans to conduct clinical tests on the use of t-PA for treatment of peripheral arterial occlusion. Commencement of clinical testing of t-PA for use in treatment of pulmonary embolism and deep vein thrombosis is presently scheduled for 1984.

Competition

The currently available clot-dissolving drugs are streptokinase and urokinase. Both drugs have the disadvantages discussed above of activating plasminogen at places other than the clot site, causing the destruction of various coagulation factors and creating a significant risk of hemorrhage. See "Potential Clinical Uses" above.

Streptokinase, the more widely used drug, has troublesome side effects. In addition to its systemic activation of the anti-clotting system in the body, streptokinase stimulates the body to produce antibodies against it because it is a foreign bacterial protein. This may cause allergic reactions. Streptokinase has been approved by the FDA for use as therapy in heart attacks, acute pulmonary embolism and deep vein thrombosis and certain other ancillary indications. Approval of the use of streptokinase for dissolving coronary blood clots during a heart attack has been limited to administration by catheterization directly into the affected coronary artery in the heart, a relatively difficult process involving significant risks and

time delay. The General Partner believes that because t-PA could be administered by intravenous injection and therefore would not require catheterization, more rapid and safer delivery would be significantly facilitated.

Although treatment with urokinase avoids the allergic reactions associated with streptokinase, it is substantially more expensive than streptokinase. It is presently approved by the FDA only as a treatment for pulmonary embolism.

Anti-coagulant therapies, such as the widely-used drugs heparin and coumadin, only prevent or slow down blood clot formation and do not eliminate injurious blood clots that have already formed.

Potential competitors of the Partnership may include companies with financial, manufacturing and marketing resources that are significantly greater than those of the Partnership or Genentech. Additionally, Genentech itself may develop other products that treat the same indications as t-PA. A foreign licensee of Genentech is currently undertaking a project to develop urokinase that was originally expressed by Genentech. Genentech has entered, and may enter, into licensing and supply agreements providing for the sale outside the United States of products containing t-PA manufactured by Genentech. Under certain limited circumstances the Partnership would receive payments based on marketing of products outside the United States or on the sale by Genentech of products competitive with t-PA. See "Summary of Material Contracts" and "Risk Factors—Conflicts of Interest".

Finally, companies other than Genentech are attempting to develop t-PA and, notwithstanding the Partnership patent position, there cannot be any assurance that competitors will not introduce their own version of t-PA into the market.

Patent Rights and Other Proprietary Rights

Genentech has filed patent applications covering t-PA and its production process. The law firm of Lyon & Lyon has reviewed the Genentech patent application relating to t-PA and has provided the Partnership with an opinion in substantially the form set forth below. This opinion represents the best judgment of Lyon & Lyon under existing statutes, judicial decisions and administrative regulations and interpretations. However, opinions of patent counsel have no binding effect on the United States Patent Office or the courts.

"You have asked us to review the Genentech t-PA patent application and advise you regarding validity.

"We have reviewed the validity search results which you recently provided us. Those results are based on a search made by Genentech and by the British firm of Mewburn, Ellis, & Co. The areas of technology indicated to have been searched, in our opinion, should have produced the most pertinent prior art relating to t-PA and its production. There is nothing in the search results which describes the method of producing t-PA as set forth in the Genentech patent application or the resulting t-PA produced by that method. Thus, we are of the opinion that, based upon the search results we have, the Genentech t-PA application is directed toward novel subject matter.

"Patentability requires non-obviousness as well as novelty, however. Based upon discussions with Genentech personnel, we have determined that the process of producing t-PA, as set forth in the Genentech patent application, involved non-obvious techniques. Thus, we are of the opinion that the patent application is directed to non-obvious subject matter.

"We further understand that Genentech has demonstrated biological activity, hence utility for the t-PA compound produced via the recombinant technology disclosed in the Genentech patent application. Thus, we are of the opinion that the Genentech patent application is directed to patentable subject matter.

"We cannot at this time know the form of claims which might issue. However, it is our opinion, based upon the facts referred to above, that Genentech will obtain significant patent protection covering t-PA and its method of production.

"Further, we have reviewed the U.S. patents obtained in the prior art search results discussed above which relate to t-PA and its production. In our opinion, none of those patents would be infringed by the manufacture, use or sale of t-PA made according to the Genentech application."

Under the Cross License Agreement, Genentech has granted to the Partnership an exclusive license within the United States to use all Genentech patents and know-how useful in the manufacture, use and sale of t-PA in the United States for human pharmaceutical use. See "Summary of Material Contracts—Cross License Agreement". The Partnership has been advised that Genentech has pursued a policy of seeking patents on inventions concerning novel techniques, processes, products and micro-organisms and other biological systems developed as part of its research and development activities relating to t-PA, as with its other products. Also, the Partnership has been advised that Genentech has sought diligently to protect its know-how.

Genentech has filed patent applications in the United States covering t-PA, plasmids containing the genes which encode t-PA-producing organisms and its method of production. With respect to t-PA, the General Partner expects some protection will be likely from earlier patent applications by Genentech concerning basic recombinant DNA procedures and products. Counterparts of these applications are being filed extensively outside the United States.

Although the General Partner believes that the Partnership's patent position may make it more difficult for competitors to manufacture t-PA in the United States, Genentech is unable to predict which patents will issue and the extent of protection, if any, that they will provide to the Partnership. The extent to which efforts by other researchers will result in patents or other proprietary rights and the extent to which the Partnership may need to obtain licenses from others are currently unknown.

To the extent it is advantageous to do so, the Partnership intends to protect its know-how (other than patentable inventions) as trade secrets. Such know-how will include the knowledge about t-PA acquired during clinical testing. Under present procedures, the results of such clinical testing submitted to the FDA will be kept confidential. Under the Cross License Agreement, the Partnership has agreed that Genentech may make such test results available to other licensees of Genentech who are authorized to sell t-PA outside the United States, and Genentech has agreed to make available to the Partnership the test results of such other licensees to the extent that Genentech is contractually permitted to do so. See "Summary of Material Contracts—Cross License Agreement".

Marketing Plans

If Genentech exercises its option to enter into the Joint Venture, Genentech will be obligated to market the Partnership's products. If Genentech purchases the Partnership Interests, Genentech will be responsible for marketing t-PA. See "Summary of Material Contracts—Joint Venture Agreement" and "—Partnership Purchase Agreement".

In view of the indications for which t-PA is expected to be effective, the initial sales effort will be directed at a relatively small group of prescribing physicians and clinicians in the United States, generally based in major hospitals. To address these markets, Genentech intends to deploy a relatively small sales force of specialists who will be primarily responsible for major medical centers in a particular region. Genentech expects to expand this sales force according to marketing requirements. Distribution of the product will be accomplished either directly by Genentech or through established drug wholesalers to hospital pharmacies and retail pharmacies.

Since Genentech does not presently have pharmaceutical products available for sale, it does not yet have a sales force. Genentech intends to use the same sales force for the marketing of t-PA as it intends to establish for the marketing of its other human pharmaceutical products. Genentech does not anticipate significant problems in the development of such a sales force. It is anticipated that t-PA will be the second human pharmaceutical product to be marketed by Genentech.

Use of Proceeds

To carry out the development program, the Partnership will contract with Genentech to perform clinical testing and other research and product development. Assuming that 645 Units are sold, payments to Genentech will aggregate approximately \$28.6 million during the years 1983 through 1986. The Partnership is budgeting \$500,000 for the working capital of the Joint Venture to be contributed by the Partnership in 1985 if the Joint Venture Option is exercised during that year. Estimated receipts and disbursements during the development phase are as shown in the following table:

Estimated Partnership Receipts and Disbursements

Receipts	1983	1984	1985	1986	Total
	(In Thousands)				
Capital Contributions					
Limited Partners	\$9,675	\$8,063	\$8,062	\$6,450	\$32,250
General Partner	98	82	81	65	326
Total	<u>\$9,773</u>	<u>\$8,145</u>	<u>\$8,143</u>	<u>\$6,515</u>	<u>\$32,576</u>
Disbursements					
Selling and Organizational Expenses	\$2,798	\$ 645	\$ —	\$ —	\$ 3,443
Development Agreement Payments	6,975	7,500	7,643	6,515	28,633
Joint Venture Capital	—	—	500	—	500
Total	<u>\$9,773</u>	<u>\$8,145</u>	<u>\$8,143</u>	<u>\$6,515</u>	<u>\$32,576</u>

Development Budget

The General Partner has estimated the development budget over the period from April 1983 through June 1986 to include the categories of expenses shown in the following table:

	1983	1984	1985	1986	Total
	(In Millions)				
Research					
Applied	\$1.2	\$ 1.8	\$1.6	\$0.1	\$ 4.7
Clinical	2.1	4.4	4.3	1.3	12.1
Development	3.7	3.8	3.8	0.5	11.8
Total	<u>\$7.0</u>	<u>\$10.0</u>	<u>\$9.7</u>	<u>\$1.9</u>	<u>\$28.6</u>

In the event that more than 645 Units are sold through exercise of the overallotment referred to under the caption "Plan of Distribution", the additional proceeds to the Partnership will be applied to increase research and development expenditures, as determined by the General Partner.

Business Plan Product Revenue Assumptions

The General Partner has developed a set of financial assumptions, which it believes are reasonable based on information currently available, as a basis for its long-term business plan for the sale in the United States of t-PA produced using recombinant DNA technology. The assumptions relate to diseases and disorders for which limited therapy is now available and for which market size is difficult to define. There can be no assurance that these assumptions will be realized.

In addition to these assumptions and the assumptions described in "Business of the Partnership—Product Objectives", all revenue assumptions are expressed in constant 1983 dollars, and patient populations are assumed to increase at the rate of 2.5% per year from 1983 through 1990 and 1.7% per year thereafter.

Any variance from the foregoing assumptions will affect the amounts presented in the following table and in the tables above entitled "Potential Financial Returns—Cash" and "Potential Financial Returns Summary".

These assumptions represent estimated sales of t-PA by the Joint Venture in 1985 and 1986 and estimated sales of t-PA by Genentech in 1987 through 1998. The return to the Partnership and the Investors from such estimated sales will be calculated as described in "Summary of Material Contracts—Joint Venture Agreement" and "—Partnership Purchase Agreement".

<u>Total</u>	Estimated t-PA Sales							
	(In Millions)							
	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	
\$32,250	\$33	\$86	\$172	\$243	\$268	\$275	\$280	
326								
<u>\$32,576</u>		<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>
		\$281	\$289	\$294	\$299	\$304	\$309	\$315
\$ 3,443								
28,633								
500								
<u>\$32,576</u>								

RISK FACTORS

Business Risks

No Assurance of Product Efficacy

The success of the Partnership will require, among other factors, demonstration through clinical testing that t-PA is safe and efficacious for the treatment of one or more indications. To date there has been no significant testing of the effects of t-PA when administered to humans, and the results of the pre-clinical laboratory tests of t-PA that have been performed are not necessarily indicative of results that will be obtained from human clinical testing.

Possible Side Effects

In some cases, molecules produced from recombinant DNA technology, while virtually identical to the natural substances produced by the human body, may contain differences in composition as well as small amounts of impurities resulting from the manufacturing process, and could result in side effects when used in human treatment. Even if the marketing of t-PA is approved by the FDA, the product may demonstrate adverse side effects that prevent its widespread use or limit its use to only life-threatening situations. A known side effect of t-PA is that t-PA does not distinguish between beneficial clots and injurious clots in the body, thereby creating a risk to patients who have had major bleeding episodes in the recent period prior to administration of t-PA. Other side effects may be discovered in the course of clinical trials or the use of t-PA.

Scale Up of Manufacturing Processes

To date Genentech has not manufactured t-PA in quantities sufficient for commercial marketing. There is no assurance that the Partnership will be successful in scaling up manufacturing processes for the production of t-PA in such quantities.

FDA Approval; Possible Delays

The success of the Partnership will also require approval by the FDA for the marketing of t-PA. There can be no assurance that the FDA will approve the marketing of t-PA. Any delay in obtaining FDA approvals would have a material adverse effect on the commercial success of the Partnership. Genetic engineering is a new production technology and the Partnership's products will be among the first pharmaceuticals produced by means of recombinant DNA technology to be considered by the FDA for marketing approval.

No Assurance of Commercial Success

Even if t-PA is approved for marketing by the FDA, there is no assurance that t-PA will be prescribed by physicians or accepted by patients.

Competition

Other companies are attempting to develop t-PA products using recombinant DNA technology. The successful marketing of such products in the United States by competitors may adversely affect sales volume and prices realized by the Partnership's products. Although the Partnership holds various patent rights under license from Genentech, there can be no assurance that such patent rights (or other proprietary information of Genentech or the Partnership) will be effective in inhibiting competition with respect to the manufacture and sale of t-PA.

Possible Need for Additional Funds

Although the Partnership believes that the proceeds from this offering (including any proceeds from sales of additional Units in connection with the overallotment referred to under the caption "Plan of Distribution") will be sufficient to cover the clinical testing and other research and development of t-PA for a variety of indications, there can be no assurance that additional funds will not be required. In the event that Genentech does not exercise both the Joint Venture Option and the Partnership Purchase Option, the Partnership may require additional funds to manufacture and market its products. In any event, the Partnership may require additional funds and there can be no assurance that such additional funds will be available or that raising additional funds will not result in substantial reduction in the return to Investors from the Partnership.

No Assurance of Exercise by Genentech of Joint Venture Option or Partnership Purchase Option

Genentech is not obligated to exercise its option to enter into the Joint Venture or, if it does enter into the Joint Venture, to exercise its option to purchase the Partnership Interests. If Genentech does exercise these options, there can be no assurance that Genentech will be able, despite its efforts, to manufacture or sell t-PA, or to license a third party to do so, thereby generating economic benefits for the Investors. If Genentech exercises the Partnership Purchase Option and does not manufacture and market t-PA, there may be no amounts payable to the Investors who choose the Payment Stream Alternative (other than the distributions equal to 15% of the Units of Limited Partnership Interests payable upon exercise of the Partnership Purchase Option), even though Genentech will have acquired all of the Partnership's right, title and interest with respect to t-PA.

If Genentech does not exercise the Joint Venture Option or the Partnership Purchase Option, there may be no amounts payable to the Partnership unless the Partnership licenses or sells its rights with respect to t-PA to another entity and the resulting products are marketed successfully. There can be no assurance that another entity will acquire the Partnership's rights with respect to t-PA if Genentech does not exercise the Joint Venture Option or the Partnership Purchase Option, or that the terms of any sale or license to another entity would be as favorable as the terms set forth in the Joint Venture Agreement or the Partnership Purchase Agreement. In any event, the Partnership would not be able to market its rights to entities other than Genentech prior to expiration of the foregoing options.

Regulation by Government Agencies

In addition to regulation by the FDA, the Partnership and Genentech will be subject to various environmental, safety and health regulations. The extent of adverse government regulation which might arise from future legislative or administrative action cannot be predicted.

Product Liability

The testing and marketing of pharmaceutical products entails an inherent risk of possible product liability. The General Partner intends to seek insurance against such risks on behalf of the Partner-

ship
ass
Par

Limited

Ge
Ag
an
me
re
an

Conflict

T
th
th

Negoti

T
F
A

Work

(
(
]

Joint

Open

ship, and Genentech has agreed to indemnify the Partnership against certain liabilities. There is no assurance, however, that a product liability claim would not adversely affect the business of the Partnership or the return to Investors from the Partnership.

Limited Operating History of Genentech

Genentech will conduct the research and development for the Partnership under the Development Agreement and, if Genentech exercises its option to enter into the Joint Venture, will manufacture and market for the Joint Venture. Genentech has only limited experience in the development, manufacturing and marketing of pharmaceutical products and the conduct of clinical testing programs required to obtain FDA approval. Thus, there is no operating history upon which Investors may base an evaluation of the likely commercial performance of Genentech.

Conflicts of Interest

The Partnership may be subject to various conflicts of interest arising from its relationship with the General Partner and its affiliates. The risk exists that such conflicts will not be resolved in the best interests of the Investors. These conflicts include:

Negotiation of Agreements

The terms of all of the agreements and arrangements between the Partnership and the General Partner or any of its affiliates were determined by negotiations between Genentech and the Sales Agent, which negotiations might not be considered to be arm's length.

Work Performed Under Development Agreement

Genentech will receive compensation from the Partnership for the research and development carried out under the Development Agreement. The interests of the General Partner and those of the Partnership may conflict with respect to various issues concerning the testing and development of t-PA, including the potential conflict of interest should the research and development carried out under the Development Agreement prove to be more valuable for uses outside the United States than for uses within the United States.

Joint Venture and Partnership Purchase Option Agreement

Genentech is not obligated to exercise the Joint Venture Option or the Partnership Purchase Option and will exercise these options only if it views such exercise as being in its best interests, without regard to the best interests of the Partnership or the Limited Partners.

Operation of Joint Venture

Under the terms of the Joint Venture Agreement, Genentech will have exclusive managerial responsibility for operation of the Joint Venture and will manufacture and sell t-PA in the United States for the Joint Venture. Genentech may also be manufacturing t-PA for sale outside of the United States for its own account or for foreign licensees. If Genentech is unable to produce an adequate amount of t-PA to supply all of these demands, this may have an adverse effect on the Partnership. In addition, Genentech will be responsible for marketing the products of the Joint Venture, and it is anticipated that such products will be marketed by the same sales force that sells Genentech's products and the products of other partnerships or joint ventures, generally. An incentive could exist for Genentech, or for its sales personnel, to devote greater effort to the sale of such other products than would be devoted to the sale of the Joint Venture's products.



Bob Swanson and Fred Middleton in July 1999 celebrating Fred's 50th birthday in Hillsborough, California, a few months before Bob's death later that year.

INDEX--Fred A. Middleton

- Abbott Laboratories, 50, 55
 Adams, Daniel, 13
 Agilent, 53
 Amdahl Computer, 46
 Amdahl, Gene, 40, 46
 Amgen, 19, 22, 46, 47
 Apple Computer, 28
 Applied Biosystems, 53, 54
 Arscott, Dave, 5
- Bank of America Leasing, 16
 Baxter Travenol Genentech Diagnostics,
 21, 54-56, 58
 Benton, Lee, 31, 58, 62
 Biogen, 19, 25, 27, 30, 35-36, 47, 48
 biotechnology analysts, 35-36
 biotechnology companies/industry
 clinical trials, 47
 FIPCO strategy, 47
 first conference, 26
 instrumentation for, 53-54, 58
 R&D partnerships, 47
 U.S. corporate interest in, 58. *See*
 also specific corporations
 Blyth Eastman Paine Webber, 18, 28, 30,
 32, 40
 Boehringer Ingelheim, 19
 Bowman, Blaine, 7
 Boyer, Herbert W., 8, 12, 28, 29, 31, 33, 37
 Byers, Brook, 11
 Byrnes, Bob, 21, 25
- Caltech, 9
 Campbell-White, Annette, 36-37
 Celera Genomics, 53
 Centocor, 46
 Cetus, 19, 25, 27, 30, 35-36, 47, 48, 53-54
 Chase Manhattan Bank, Middleton
 employment at, 9, 11
 Chiron, 47, 54
 Ciba-Geigy, 52
 City of Hope Medical Center, 9
 Clayton, Shirley, 20
 clinical research organizations, 38
 Cohen, Stanley N., 8
 Cooley Godward, 62
- Corning Glass Works, 21, 24, 34, 48-52,
 55, 58. *See also* Genencor
 Coyle, Bud, 28, 30, 46
 Coyne, Chuck, 67
 Cultor, 50
 Cunningham, Brian, 58
- Daiichi Seiyaku, 34
 Dakin, John, 32
 Davis Polk & Wardell, 46
 diagnostic products, 55-56
Diamond v. Chakrabarty, 37
 drug companies, 29, 38, 39
- Eastman Kodak, 50
 E.F. Hutton, 26-27
 Eli Lilly, 12, 29, 33
 Elanco division, 52
 insulin contract, 16-17, 26, 29, 64
 growth hormone competition, 23
 Epogen, erythropoietin, 25, 36
 Ernst & Young, 60
 Evans-Freke, Stephen, 46
- Fairchild Semiconductor, 28
 Financial Accounting Standards Board, 61
 FIPCO, Genentech as, 22-24
 Fluor Corp., 21, 32, 33
- genetic engineering. *See* recombinant
 DNA/genetic technology.
 Genenchem, 53, 54, 56
 Genencor, 21, 34, 48-50, 56
 Genentech, business aspects/facilities
 acquisition by Roche, 39
 agricultural program, 51-52
 benchmarks, 63-67
 biosafety facility, 14, 37
 board of directors, 21, 52, 57, 61
 business/financial strategy, 17-20,
 24, 36
 clinical partnerships. *See* R&D
 partnerships
 clinical trials, 39, 44-45
 contract research programs, 56
 facilities, 14-15, 19, 28, 33

Genentech, business aspects/facilities

(continued)

and FDA, 38
 fermenter, 28
 financing/budgeting, 26, 27, 29,
 34-35, 39, 44, 68. *See also specific
 instruments*
 FIPCO, 22-24, 44, 46
 foundation, 8-9
 industrial products group, 51
 intellectual property, 16, 18, 37, 45
 joint ventures, 48-49, 51-58
 junior common stock, 59-63
 IPO, 17-18, 26-32, 35, 37
 joint ventures, 20, 51-58, 67
 limited R&D partnerships, 18-19, 35,
 39-48, 68
 management team, 10-12, 20
 outlicensing, 24, 45-46
 pharmaceutical focus, 48, 51
 premium market capitalization,
 34-35
 private placements, 34, 39, 57
 product development teams, 67-68
 product evaluation teams, 67-68
 research foci, 24-25
 stock, royalties, warrants, 16, 31-32,
 41, 42, 46, 59-66

Genentech Development Corporation, 44

Genentech R&D limited partnerships, 18-19, 35,
39-47

Genentech projects/products

CD4, 42, 44
 growth hormone, 23, 26, 29,
 33, 38, 39, 41, 42, 45, 46, 51, 64
 industrial chemicals, 57
 industrial enzymes. *See* Genencor.
 insulin, 8, 10, 12, 16-17, 25
 interferons, 19, 24, 25, 26, 29, 33,
 39, 41, 51-52
 somatostatin, 12
 synthetic DNA and, 37
 tPA, 19, 24-26, 33, 36, 38, 39, 40, 41,
 42, 45, 46-47
 tumor necrosis factor, 42, 44
 vitamin C, 57

Genetic Systems, 43

Genex, 27, 30

Gilbert, Walter, 36

Gist Brocades, 49

GLC Associates, 57

Goeddel, Dave, 25

Gomez, Reinaldo, H., 51, 58

government regulation of rDNA research,
37-38

granulocyte colony-stimulating factor, 19

Guernsey, Ken, 17

Hall, Ted, 7

Hambrecht, Bill, 27, 28, 32

Hambrecht & Quist, 18, 27, 28, 30, 40

Harvard Business School, Middleton's
education at, 4-5Hewlett-Packard [HP] Genenchem, 53, 54,
56, 58

Heyneker, Herb, 49

Hillman family venture capital, 14

Hoechst, 12, 16-17

Hoffmann LaRoche, 25, 26, 34, 54, 57
acquisition of Genentech, 39

Houghton, Amory, 21

IDEC Pharmaceuticals, 43

Inco Venture Capital Management, 1, 26

industrial enzymes, 52. *See also* Genencor
Intel, 28

interleukins as commercial products, 47

InterMune Pharmaceuticals, 19

IRS, 39, 61

Johnson & Johnson, 12, 29

Kabi, 26

Kaiser, Dave, 2

Katzenbach, John, 7

Kennedy, Edward, 37

Kiley, Thomas D., 16, 21, 58

Kleiner, Eugene, 8, 13, 27, 28

Kleiner & Perkins, 11, 16, 27, 31, 33

Swanson's employment with, 8, 13

Larson, Don, 7

Leach, Robert E., 21, 49

Levin, Mark, 67

Levinson, Art, 22

Lindgren, Bob, 3

- Loucks, Vernon R., 54, 55
 Loustaunou, Jack, 8, 27
 Lubrizol, 14, 21, 26, 33, 56, 57, 58
 Lyon & Lyon, 16
- MacCallum, David, 36
 Mann, Bruce, 31
 Marsh, Reid, 2
 Massachusetts Institute of Technology
 biochemistry course, 3-4
 Middleton's education at, 2-4
 Sigma Chi fraternity, 2-3
 Sloan School of Management, 4
 Mayfield Fund, 13, 26
 McGrath, Patricia, 20
 McKinsey & Co., Middleton's employment
 at, 5-7
 MedVenture Associates, 36
 Merrill Lynch, 40, 46
 Mitsubishi, 34
 Molecular Devices, 54
 Monsanto, 51
 Morgan Stanley Research Venture Partners,
 and Middleton, 21, 43
 Murfin, Don, 21, 32, 57
- NIH recombinant DNA advisory committee,
 37
 Novo Nordisk, 12, 16-17, 49
- Ostrach, Michael S., 35
- Packard, Dave, 21
 Paine Webber Development Corporation,
 41, 46
 Perkins, Tom, 8, 13, 27, 29, 30, 32, 35, 40,
 46
 Peters, Tom, 7
 Pettinga, Cornelius, 16, 17, 29
 Pfaff, Dave, 20
 polymerase chain reaction, 54
 Procter & Gamble, 49-50
 PruTech, 56-57
- Quist, George, 27
- Rastetter, William H., 58
 Rathmann, George, 19, 25
- recombinant DNA controversy, 37
 recombinant DNA technology/genetic
 technology, 14, 26-27, 28, 30, 31, 48
 and diagnostics, 55-56
 and industrial chemicals, 57, 58
 and industrial enzymes, 49-50, 58
 and monoclonal antibodies, 55
 and pharmaceutical products. *See*
 also specific Genentech projects
 Swanson's early interest in, 8, 12, 46
- Robertson, Sanford R., 54
 Robertson, Colman, Siebel & Weisel, 27
 Roche. *See* Hoffmann-La Roche
 Rock, Arthur, 28
 Rohm & Haas, 50
 Ross, Michael J., 58
 Ruffin, Fred, 20
- San Francisco Examiner* article & Middleton,
 30
 Securities & Exchange Commission [SEC],
 30-31, 60-61, 62
 Sheehan, Brian, 10, 12, 25
 Silicon Graphics, 43
 Steele, Gary, 51
 stem cell controversy, 37
 Step, Gene, 29
 Studebaker-Worthington, Middleton's
 employment at, 6
 Swanson, Judy, 31
 Swanson, Robert A., 17, 33, 37
 and FDA, 38
 Genentech organization &
 management, 10, 15, 16, 20, 21,
 31, 32, 33, 46, 50, 52, 55, 56, 68
 pre-Genentech, 2-7, 11-12, 13, 14, 27
 and IPO, 28-30
- Tandem Computers, 8, 27
 Tappan, Dave, 21
 Tax Reform Act, 43
- Treybig, Jimmy, 8, 27
 Trilogy, 46
- Unterberg, Towbin, 27-28, 35

venture capital/venture capital industry, 5-6,
8, 10, 14, 43. *See also specific companies*
Vincent, James L., 23

Waterman, Bob, 7
Wilmington Securities, 26
Wood, Dick, 29

Young, Bill, 33
Young, Dendy, 3

Glenn E. Bugos

Since 1994 has served as principal historian with The Prologue Group, a corporate history consulting firm. He received his Ph.D. in 1988 from the University of Pennsylvania, through the Department of the History and Sociology of Science, Technology, and Medicine. He has published on the history of biotechnology, aerospace, and other topics in the recent history of business and technology.

U. C. BERKELEY LIBRARIES



C083158947

